

Labs Reporting MaW

<i>Lab Code</i>	<i>Lab Name</i>
AALI01	Accura Analytical Laboratory, Inc
ADEM01	Alabama Department of Environmental Management
AFOH01	AFIOH/SDRR
ANLA01	Argonne National Laboratory/Analytical Chemistry Lab.
ANLB01	Argonne National Laboratory
ANTE01	Paragon Analytics a Division of DataChem Laboratories, Inc.
ARGO01	Idaho National Laboratory
ARPL01	Analytical Support Operations - Radiochemical Processing Lab
ARSL01	American Radiation Services Inc.
ATLI01	ATL International, Inc.
AY1201	BWXT Y-12, Analytical Chemistry Organization Laboratory
BNEL01	Northeast Laboratory Services, Inc.
CDHS01	California Department of Health Services
CESL01	Lawrence Livermore National Laboratory - EMRL
CHMH01	CH2M Hill 222-S Laboratory
CMRC01	Carlsbad Environmental Monitoring and Research Center
CORE02	STL Denver
DAFI01	Davis & Floyd, Inc.
EMBW01	CH2M Hill, Mound Inc., Mound, Environmental Monitoring
EPAL01	U. S. EPA Office of Radiation and Indoor Air
ERAD01	Lawrence Livermore National Laboratory ERAD
ERCL01	Public Health Laboratories
ERHD99	Radiation Protection Bureau ERHD NMS
ERLG01	Environmental Radiation Laboratory
ERPD99	Environmental Radiation Protection Division
FDHE01	Florida Dept of Health Environmental Laboratory
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab
FERM01	Fluor Fernald
FNAL01	Fermi National Accelerator Laboratory (FermiLab)
GENE01	General Engineering Laboratories, LLC
GPCL01	Georgia Power Company Environmental Laboratory
HCAL01	Hazards Control Analytical Lab
HECR01	SC Dept. Health and Environmental Control Radiological Laboratory
HWRL01	Lawrence Livermore National Laboratory - HWRL
IAEA99	International Atomic Energy Agency
IDGR01	Oak Ridge National Laboratory-Internal Dosimetry Group
ISUP01	ISU - Department of Physics/Health Physics/EAL
JAEC99	Radiation Measurements Laboratory

<i>Lab Code</i>	<i>Lab Name</i>
JLNN01	Jefferson Laboratory
LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY
LAWR02	Lawrence Livermore National Laboratory
LOCK01	ICP Analytical Laboratories Department
LOCK03	RADIATION MEASUREMENTS LABORATORY/AEDL
MART01	USEC, Inc.
MART02	United States Enrichment Corporation
MDPH01	MDPH-Radiation Control Program
NARL01	National Air and Radiation Environmental Laboratory
NESI01	BWXT Services-Nuclear Environmental Laboratory Services
NJDH01	New Jersey Dept. of Health & Senior Services, PHEL, ECLS
NMLA01	Assaigai Analytical Laboratories
NRLL99	National Radiation Laboratory
NTSI01	Nuclear Technology Services, Inc.
OBGL01	O'Brien & Gere Laboratories, Inc.
ODHL01	Ohio Department of Health Laboratory
ORIS01	ORISE/ESSAP
OTLI01	Outreach Technologies, Inc.
QUAN01	STL St. Louis
QUAN02	STL Knoxville
QUAN03	SEVERN TRENT LABORATORIES RICHLAND
RECC01	GEL Laboratories of Ohio, LLC
RMCL99	Royal Scientific Society - Radiation Measurements Lab
RPSC01	Radiation Protection Service
RSAL01	RSA Laboratories, Inc.
RSIR99	Instituto de Radioprotecao e Dosimetria
SAVA01	WSRC/SAVANNAH RIVER NATIONAL LABORATORY/ADS
SCAL01	Sanford Cohen and Associates, Inc.
SECRO1	SECRA 3005 Count Lab - ORNL
SEML01	SRS Environmental Monitoring Laboratory
SIHA01	Sandia National Lab - Industrial Hygiene Analytical Chemistry Lab
SLAC01	SLAC
SLDL01	Scientific Laboratory Division
SNEC01	Saxton Nuclear Experimental Corp
SOUT01	Southwest Research Institute
SRPD01	Sandia National Laboratories, Radiation Protection Sample Diagnostics
SSFL01	Santa Susana Field Laboratory
TDHL01	Texas Department of State Health Services Laboratory
TELE01	TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL SERVICES
TELE02	Environmental, Inc., Midwest Lab

<i>Lab Code</i>	<i>Lab Name</i>
TMAE01	Eberline Services, Inc.
TMAO01	EBERLINE SERVICES OAK RIDGE LABORATORY
TMAR01	Eberline Services
TNUT01	FUSRAP
WEST01	Lionville Laboratory Incorporated
WEST03	Waste Sampling and Characterization Facility
WEST04	PACE ANALYTICAL SERVICES WALTZ MILL SITE
WIPH01	WI, DPH, Radiation Protection Section
WIPP01	WIPP Laboratories
WSHL01	Wisconsin State Laboratory of Hygiene
WVDP01	WVDP Environmental Laboratory
WVNS01	West Valley Nuclear Services
YAEC01	Framatome ANP Environmental Laboratory
YPGA01	US Army Yuma Proving Ground / Material Analysis Lab

Mixed Analyte Performance Evaluation Program

Statistical Summary

Sample ID: MAPEP-05-MaW13

Analyte	T(1)	A(2)	Grand Mean	Std. Dev.	Reference Value	Analyte Text	Acceptance Limits	Units
Antimony	24	20				False Positive Test		
Arsenic	28	24				False Positive Test		
Barium	32	32	2.64	0.11	2.63		1.84 - 3.42	(mg/L)
Beryllium	30	30	0.41	0.02	0.417		0.29 - 0.54	(mg/L)
Cadmium	32	32	0.30	0.01	0.303		0.21 - 0.39	(mg/L)
Chromium	32	32	1.81	0.06	1.67		1.17 - 2.17	(mg/L)
Copper	30	29	1.87	0.08	1.92		1.34 - 2.50	(mg/L)
Lead	32	32	1.20	0.06	1.21		0.85 - 1.57	(mg/L)
Mercury	25	21	0.10	0.01	0.102		0.07 - 0.13	(mg/L)
Nickel	31	31	0.95	0.07	0.968		0.68 - 1.26	(mg/L)
Selenium	32	32	0.35	0.02	0.362		0.25 - 0.47	(mg/L)
Thallium	24	22				False Positive Test		
Uranium-Total	11	11	0.27	0.02	0.27		0.19 - 0.35	(mg/L)
Uranium-235	3	3			0.0019			(mg/L)
Uranium-238	5	5			0.268			(mg/L)
Vanadium	30	30	3.67	0.12	3.67		2.57 - 4.77	(mg/L)
Zinc	31	31	1.31	0.08	1.33		0.93 - 1.73	(mg/L)
Americium-241	50	48	1.70	0.16	1.72		1.20 - 2.24	(Bq/L)
Cesium-134	79	77	114.89	6.95	127		88.90 - 165.10	(Bq/L)
Cesium-137	80	78	323.17	13.39	332		232.40 - 431.60	(Bq/L)
Cobalt-57	79	77	226.89	13.39	227		158.90 - 295.10	(Bq/L)
Cobalt-60	80	78	249.57	9.35	251		175.70 - 326.30	(Bq/L)
Hydrogen-3	55	49	290.21	24.03	280		196.00 - 364.00	(Bq/L)
Iron-55	14	11	76.08	9.62	75.9		53.13 - 98.67	(Bq/L)
Manganese-54	80	77	329.51	14.88	331		231.70 - 430.30	(Bq/L)
Nickel-63	19	11			9.0	Sensitivity Eval		
Plutonium-238	44	42			0.018	Sensitivity Eval		
Plutonium-239/240	50	45	2.41	0.18	2.4		1.68 - 3.12	(Bq/L)
Strontium-90	42	36				False Positive Test		(Bq/L)
Technetium-99	26	21	40.68	3.21	42.9		30.03 - 55.77	(Bq/L)
Uranium-234/233	51	50	3.24	0.28	3.24		2.27 - 4.21	(Bq/L)
Uranium-238	54	51	3.34	0.28	3.33		2.33 - 4.33	(Bq/L)
Zinc-65	79	77	521.66	27.59	496		347.20 - 644.80	(Bq/L)

Note:

Outliers are excluded from the statistical summary.
Outliers are defied as laboratory data with a bias greater than 30 percent.

(1) T = Total Number of Laboratories Reporting Analyte.

(2) A = Number of Laboratories with 'Acceptable' Performance.

Mixed Analyte Performance Evaluation Program

Laboratory Results

AALI01

Accra Analytical Laboratory, Inc
6017 Financial Drive

Sample ID: MAPEP-05-MaW13

	Norcross	GA	30071						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	2.64	2.63	A		0.4	1.84 - 3.42			(mg/L)
Beryllium	0.401	0.417	A		-3.8	0.29 - 0.54			(mg/L)
Cadmium	0.291	0.303	A		-4.0	0.21 - 0.39			(mg/L)
Chromium	1.81	1.67	A		8.4	1.17 - 2.17			(mg/L)
Copper	1.80	1.92	A		-6.3	1.34 - 2.50			(mg/L)
Lead	1.17	1.21	A		-3.3	0.85 - 1.57			(mg/L)
Mercury	0.093	0.102	A		-8.8	0.07 - 0.13			(mg/L)
Nickel	0.912	0.968	A		-5.8	0.68 - 1.26			(mg/L)
Selenium	0.336	0.362	A		-7.2	0.25 - 0.47			(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.68	3.67	A		0.3	2.57 - 4.77			(mg/L)
Zinc	1.28	1.33	A		-3.8	0.93 - 1.73			(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	NR	496				347.20 - 644.80			

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ADEM01

Alabama Department of Environmental Management

Sample ID: MAPEP-05-MaW13

Central Laboratory

Montgomery

AL

36190

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	114	127	A		-10.2	88.90 - 165.10	4.77		(Bq/L)
Cesium-137	323	332	A		-2.7	232.40 - 431.60	12.8		(Bq/L)
Cobalt-57	228	227	A		0.4	158.90 - 295.10	6.96		(Bq/L)
Cobalt-60	249	251	A		-0.8	175.70 - 326.30	5.00	L	(Bq/L)
Hydrogen-3	269	280	A		-3.9	196.00 - 364.00	6.50	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	330	331	A		-0.3	231.70 - 430.30	13.9		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	529	496	A		6.7	347.20 - 644.80	17.7		(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

AFOH01

AFIOH/SDRR

2350 Gillingham Dr

Sample ID: MAPEP-05-MaW13

Brooks City-Base

TX

78235-5103

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.71	1.72	A		-0.6	1.20 - 2.24	.21		(Bq/L)
Cesium-134	106.01	127	A		-16.5	88.90 - 165.10	3.42		(Bq/L)
Cesium-137	311.63	332	A		-6.1	232.40 - 431.60	14.06		(Bq/L)
Cobalt-57	233.35	227	A		2.8	158.90 - 295.10	8.02		(Bq/L)
Cobalt-60	241.98	251	A		-3.6	175.70 - 326.30	7.22	L	(Bq/L)
Hydrogen-3	316.72	280	A		13.1	196.00 - 364.00	32.47		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	317.92	331	A		-4.0	231.70 - 430.30	12.77		(Bq/L)
Plutonium-238	.45	0.018	N	4			.09		(Bq/L)
Plutonium-239/240	2.10	2.4	A		-12.5	1.68 - 3.12	.28		(Bq/L)
Strontium-90	3.28		N				.39		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.49	3.24	A		7.7	2.27 - 4.21	.28		(Bq/L)
Uranium-235	.20						.04		(Bq/L)
Uranium-238	3.59	3.33	A		7.8	2.33 - 4.33	.28		(Bq/L)
Zinc-65	510.97	496	A		3.0	347.20 - 644.80	20.44		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

AFOH01 AFIOH/SDRR
2350 Gillingham Dr
Brooks City-Base TX 78235-5103

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ANLA01

Argonne National Laboratory/Analytical Chemistry Lab.
9700 S. Cass Avenue

Sample ID: MAPEP-05-MaW13

	Argonne	IL	60439-4803						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	<0.05		A						(mg/L)
Barium	2.61	2.63	A		-0.8	1.84 - 3.42	0.26		(mg/L)
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	0.295	0.303	A		-2.6	0.21 - 0.39	0.03		(mg/L)
Chromium	1.80	1.67	A		7.8	1.17 - 2.17	0.18		(mg/L)
Copper	1.91	1.92	A		-0.5	1.34 - 2.50	0.19		(mg/L)
Lead	1.19	1.21	A		-1.7	0.85 - 1.57	0.12		(mg/L)
Mercury	0.107	0.102	A		4.9	0.07 - 0.13	0.01		(mg/L)
Nickel	NR	0.968				0.68 - 1.26			
Selenium	0.347	0.362	A		-4.1	0.25 - 0.47	0.03		(mg/L)
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	1.31	1.33	A		-1.5	0.93 - 1.73	0.13		(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	118	127	A		-7.1	88.90 - 165.10	10		(Bq/L)
Cesium-137	354	332	A		6.6	232.40 - 431.60	10	L	(Bq/L)
Cobalt-57	230	227	A		1.3	158.90 - 295.10	10		(Bq/L)
Cobalt-60	248	251	A		-1.2	175.70 - 326.30	10		(Bq/L)
Hydrogen-3	306	280	A		9.3	196.00 - 364.00	17		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	356	331	A		7.6	231.70 - 430.30	10	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	549	496	A		10.7	347.20 - 644.80	10	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

ANLA01 Argonne National Laboratory/Analytical Chemistry Lab.
9700 S. Cass Avenue
Argonne IL 60439-4803

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ANLB01

Argonne National Laboratory

9700 S. Cass Ave

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	IL	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42				
Beryllium	NR	0.417				0.29 - 0.54				
Cadmium	NR	0.303				0.21 - 0.39				
Chromium	NR	1.67				1.17 - 2.17				
Copper	NR	1.92				1.34 - 2.50				
Lead	NR	1.21				0.85 - 1.57				
Mercury	NR	0.102				0.07 - 0.13				
Nickel	NR	0.968				0.68 - 1.26				
Selenium	NR	0.362				0.25 - 0.47				
Uranium-238	NR	0.268								
Vanadium	NR	3.67				2.57 - 4.77				
Zinc	NR	1.33				0.93 - 1.73				
Americium-241	1.68	1.72	A			-2.3	1.20 - 2.24	0.16		(Bq/L)
Cesium-134	102	127	A			-19.7	88.90 - 165.10	16		(Bq/L)
Cesium-137	320	332	A			-3.6	232.40 - 431.60	12		(Bq/L)
Cobalt-57	232	227	A			2.2	158.90 - 295.10	1	L	(Bq/L)
Cobalt-60	254	251	A			1.2	175.70 - 326.30	60	H	(Bq/L)
Hydrogen-3	285	280	A			1.8	196.00 - 364.00	4	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67				
Manganese-54	317	331	A			-4.2	231.70 - 430.30	32		(Bq/L)
Plutonium-238	0.02	0.018	A	17				0.02		(Bq/L)
Plutonium-239/240	2.14	2.4	A			-10.8	1.68 - 3.12	0.22		(Bq/L)
Strontium-90	0.02		A					0.02		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77				
Uranium-234/233	3.52	3.24	A			8.6	2.27 - 4.21	0.4		(Bq/L)
Uranium-238	3.64	3.33	A			9.3	2.33 - 4.33	0.42		(Bq/L)
Zinc-65	475	496	A			-4.2	347.20 - 644.80	66		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

ANLB01 Argonne National Laboratory
9700 S. Cass Ave
Argonne IL 60439

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ANTE01

Paragon Analytics a Division of DataChem Laboratories,
225 Commerce Drive

Sample ID: MAPEP-05-MaW13

	Fort Collins	CO	80524-						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.02		A						(mg/L)
Arsenic	<0.01		A						(mg/L)
Barium	2.66	2.63	A		1.1	1.84 - 3.42			(mg/L)
Beryllium	0.41	0.417	A		-1.7	0.29 - 0.54			(mg/L)
Cadmium	0.306	0.303	A		1.0	0.21 - 0.39			(mg/L)
Chromium	1.81	1.67	A		8.4	1.17 - 2.17			(mg/L)
Copper	1.89	1.92	A		-1.6	1.34 - 2.50			(mg/L)
Lead	1.25	1.21	A		3.3	0.85 - 1.57			(mg/L)
Mercury	0.179	0.102	N		75.5	0.07 - 0.13			(mg/L)
Nickel	0.952	0.968	A		-1.7	0.68 - 1.26			(mg/L)
Selenium	0.369	0.362	A		1.9	0.25 - 0.47			(mg/L)
Thallium	<0.01		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.77	3.67	A		2.7	2.57 - 4.77			(mg/L)
Zinc	1.31	1.33	A		-1.5	0.93 - 1.73			(mg/L)
Americium-241	1.52	1.72	A		-11.6	1.20 - 2.24	0.12		(Bq/L)
Cesium-134	115	127	A		-9.4	88.90 - 165.10	6.7		(Bq/L)
Cesium-137	316	332	A		-4.8	232.40 - 431.60	18		(Bq/L)
Cobalt-57	211	227	A		-7.0	158.90 - 295.10	13		(Bq/L)
Cobalt-60	241	251	A		-4.0	175.70 - 326.30	14		(Bq/L)
Hydrogen-3	346	280	W		23.6	196.00 - 364.00	35		(Bq/L)
Iron-55	83.4	75.9	A		9.9	53.13 - 98.67	9.8		(Bq/L)
Manganese-54	319	331	A		-3.6	231.70 - 430.30	19		(Bq/L)
Nickel-63	1.53	9.0	N	4			0.20		(Bq/L)
Plutonium-238	0.011	0.018	A				0.0032		(Bq/L)
Plutonium-239/240	2.12	2.4	A		-11.7	1.68 - 3.12	0.165		(Bq/L)
Strontium-90	0.334		N	1			0.048		(Bq/L)
Technetium-99	46.6	42.9	A		8.6	30.03 - 55.77	3.8		(Bq/L)
Uranium-234/233	3.08	3.24	A		-4.9	2.27 - 4.21	0.23		(Bq/L)
Uranium-238	3.11	3.33	A		-6.6	2.33 - 4.33	0.235		(Bq/L)
Zinc-65	502	496	A		1.2	347.20 - 644.80	30		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

ANTE01 Paragon Analytics a Division of DataChem Laboratories,
225 Commerce Drive
Fort Collins CO 80524-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ARGO01

Idaho National Laboratory

INL, Material and Fuel Complex

Sample ID: MAPEP-05-MaW13

	<i>Idaho Falls</i>	<i>ID</i>	<i>83415</i>	<i>Analyte</i>	<i>Result</i>	<i>Ref Value</i>	<i>Flag</i>	<i>Flag Text</i>	<i>Bias (%)</i>	<i>Acceptance Range</i>	<i>Unc Value</i>	<i>Unc. Flag</i>	<i>Units</i>
Antimony	<0.01			A									(mg/L)
Arsenic	<0.01			A									(mg/L)
Barium	2.7	2.63	A						2.7	1.84 - 3.42	0.27		(mg/L)
Beryllium	0.435	0.417	A						4.3	0.29 - 0.54	0.04		(mg/L)
Cadmium	0.307	0.303	A						1.3	0.21 - 0.39	0.031		(mg/L)
Chromium	1.86	1.67	A						11.4	1.17 - 2.17	0.19		(mg/L)
Copper	NR	1.92								1.34 - 2.50			
Lead	1.23	1.21	A						1.7	0.85 - 1.57	0.12		(mg/L)
Mercury	0.101	0.102	A						-1.0	0.07 - 0.13	0.01		(mg/L)
Nickel	0.994	0.968	A						2.7	0.68 - 1.26	0.09		(mg/L)
Selenium	0.353	0.362	A						-2.5	0.25 - 0.47	0.035		(mg/L)
Thallium	<0.01		A										(mg/L)
Uranium-238	NR	0.268											
Vanadium	NR	3.67								2.57 - 4.77			
Zinc	NR	1.33								0.93 - 1.73			
Americium-241	NR	1.72								1.20 - 2.24			
Cesium-134	120	127	A						-5.5	88.90 - 165.10	12		(Bq/L)
Cesium-137	346	332	A						4.2	232.40 - 431.60	27.7		(Bq/L)
Cobalt-57	236	227	A						4.0	158.90 - 295.10	28.3		(Bq/L)
Cobalt-60	254	251	A						1.2	175.70 - 326.30	25.4		(Bq/L)
Hydrogen-3	NR	280								196.00 - 364.00			
Iron-55	NR	75.9								53.13 - 98.67			
Manganese-54	332	331	A						0.3	231.70 - 430.30	26.6		(Bq/L)
Plutonium-239/240	NR	2.4								1.68 - 3.12			
Technetium-99	NR	42.9								30.03 - 55.77			
Uranium-234/233	NR	3.24								2.27 - 4.21			
Uranium-238	NR	3.33								2.33 - 4.33			
Zinc-65	512	496	A						3.2	347.20 - 644.80	51.2		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

ARGO01 Idaho National Laboratory
 INL, Material and Fuel Complex
Idaho Falls ID 83415

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ARPL01

Analytical Support Operations - Radiochemical Process
PO Box 999

Sample ID: MAPEP-05-MaW13

Richland		WA	99352		Bias (%)	Acceptance Range	Unc. Value	Unc. Flag	Units
Analyte	Result	Ref Value	Flag	Flag Text					
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.76	1.72	A		2.3	1.20 - 2.24	0.09		(Bq/L)
Cesium-134	121	127	A		-4.7	88.90 - 165.10	3	L	(Bq/L)
Cesium-137	323	332	A		-2.7	232.40 - 431.60	10		(Bq/L)
Cobalt-57	221	227	A		-2.6	158.90 - 295.10	4	L	(Bq/L)
Cobalt-60	252	251	A		0.4	175.70 - 326.30	4	L	(Bq/L)
Hydrogen-3	279	280	A		-0.4	196.00 - 364.00	5	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	322	331	A		-2.7	231.70 - 430.30	6	L	(Bq/L)
Nickel-63	2	9.0	A	17			2		(Bq/L)
Plutonium-238	0.018	0.018	A				0.005		(Bq/L)
Plutonium-239/240	2.33	2.4	A		-2.9	1.68 - 3.12	0.08		(Bq/L)
Strontium-90	0.09		A				0.06		(Bq/L)
Technetium-99	37.6	42.9	A		-12.4	30.03 - 55.77	0.9	L	(Bq/L)
Uranium-234/233	3.33	3.24	A		2.8	2.27 - 4.21	0.14		(Bq/L)
Uranium-238	3.38	3.33	A		1.5	2.33 - 4.33	0.10	L	(Bq/L)
Zinc-65	502	496	A		1.2	347.20 - 644.80	12	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

ARPL01 Analytical Support Operations - Radiochemical Process
PO Box 999
Richland WA 99352

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ARSL01

American Radiation Services Inc.
2609 North River Road

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.98	1.72	A		15.1	1.20 - 2.24	0.30		(Bq/L)
Cesium-134	117.88	127	A		-7.2	88.90 - 165.10	3.89		(Bq/L)
Cesium-137	349.10	332	A		5.2	232.40 - 431.60	2.58	L	(Bq/L)
Cobalt-57	262.45	227	A		15.6	158.90 - 295.10	5.64	L	(Bq/L)
Cobalt-60	261.92	251	A		4.4	175.70 - 326.30	1.64	L	(Bq/L)
Hydrogen-3	962.58	280	N		243.8	196.00 - 364.00	11.57	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	363.58	331	A		9.8	231.70 - 430.30	6.32	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	584.46	496	A		17.8	347.20 - 644.80	13.22	L	(Bq/L)

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ATL101

ATL International, Inc.

20010 Century Blvd, Suite 500

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	117.233	127	A		-7.7	88.90 - 165.10	5.267		(Bq/L)
Cesium-137	334.650	332	A		0.8	232.40 - 431.60	26.017		(Bq/L)
Cobalt-57	244.283	227	A		7.6	158.90 - 295.10	13.967		(Bq/L)
Cobalt-60	256.850	251	A		2.3	175.70 - 326.30	10.483		(Bq/L)
Hydrogen-3	287.038	280	A		2.5	196.00 - 364.00	11.358		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	340.833	331	A		3.0	231.70 - 430.30	24.017		(Bq/L)
Plutonium-238	NR	0.018	N	18					
Plutonium-239/240	2.100	2.4	A		-12.5	1.68 - 3.12	0.280		(Bq/L)
Strontium-90	-0.083		A				0.084		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.069	3.24	A		-5.3	2.27 - 4.21	0.463		(Bq/L)
Uranium-238	3.059	3.33	A		-8.1	2.33 - 4.33	0.458		(Bq/L)
Zinc-65	540.650	496	A		9.0	347.20 - 644.80	33.117		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

ATLI01

ATL International, Inc.

20010 Century Blvd, Suite 500

Germantown

MD

20874

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable Bias <= 20%

W = Result acceptable with warning 20% < Bias <= 30%

N = Result not acceptable Bias > 30%

L = Uncertainty potentially too low

H = Uncertainty potentially too high

Q = Participant should evaluate reported value

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

Flag Text

1 - False Positive

2 - False Negative

4 - Sensitivity Evaluation

5 - Total Metal

6 - Not Evaluated

7 - DL > CLP Limit

9 - Check QL

10 - Check Isomer

11 - False Positive Test, Value Not Reported

14 - Solubility issue

15 - Refractory

16 - Reported zero uncertainty

17 - NOT DETECTED, reported a statistical zero result

18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

AY1201

BWXT Y-12, Analytical Chemistry Organization Laboratory
Y12, NSC, Bldg. 9995, Rm 142

Sample ID: MAPEP-05-MaW13

	Oak Ridge	TN	37831-8189						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.005		A						(mg/L)
Arsenic	<0.01		A						(mg/L)
Barium	2.73	2.63	A		3.8	1.84 - 3.42			(mg/L)
Beryllium	0.414	0.417	A		-0.7	0.29 - 0.54			(mg/L)
Cadmium	0.306	0.303	A		1.0	0.21 - 0.39			(mg/L)
Chromium	1.84	1.67	A		10.2	1.17 - 2.17			(mg/L)
Copper	1.92	1.92	A		0.0	1.34 - 2.50			(mg/L)
Lead	1.24	1.21	A		2.5	0.85 - 1.57			(mg/L)
Mercury	0.0909	0.102	A		-10.9	0.07 - 0.13			(mg/L)
Nickel	0.966	0.968	A		-0.2	0.68 - 1.26			(mg/L)
Selenium	0.376	0.362	A		3.9	0.25 - 0.47			(mg/L)
Silver	0.417								(mg/L)
Thallium	<0.001		A						(mg/L)
Uranium-Total	0.268	0.27	A		-0.7	0.19 - 0.35	0.03		(mg/L)
Uranium-235	0.00191	0.0019	A		0.5		0.0002		(mg/L)
Uranium-238	0.266	0.268	A		-0.8		0.03		(mg/L)
Vanadium	3.81	3.67	A		3.8	2.57 - 4.77			(mg/L)
Zinc	1.33	1.33	A		0.0	0.93 - 1.73			(mg/L)
Americium-241	1.67	1.72	A		-2.9	1.20 - 2.24	0.18		(Bq/L)
Cesium-134	127	127	A		0.0	88.90 - 165.10	6.4		(Bq/L)
Cesium-137	328	332	A		-1.2	232.40 - 431.60	34		(Bq/L)
Cobalt-57	233	227	A		2.6	158.90 - 295.10	17		(Bq/L)
Cobalt-60	251	251	A		0.0	175.70 - 326.30	18		(Bq/L)
Hydrogen-3	272	280	A		-2.9	196.00 - 364.00	27		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	338	331	A		2.1	231.70 - 430.30	35		(Bq/L)
Plutonium-238	0.017	0.018	A	17			0.0095		(Bq/L)
Plutonium-239/240	2.46	2.4	A		2.5	1.68 - 3.12	0.25		(Bq/L)
Strontium-90	0.049		A				0.10		(Bq/L)
Technetium-99	41.8	42.9	A		-2.6	30.03 - 55.77	0.77	L	(Bq/L)
Uranium-234/233	3.17	3.24	A		-2.2	2.27 - 4.21	0.32		(Bq/L)
Uranium-238	3.17	3.33	A		-4.8	2.33 - 4.33	0.32		(Bq/L)
Zinc-65	533	496	A		7.5	347.20 - 644.80	54		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

AY1201

BWXT Y-12, Analytical Chemistry Organization Laboratory
Y12, NSC, Bldg. 9995, Rm 142
Oak Ridge TN 37831-8189

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

BNEL01

Northeast Laboratory Services, Inc.
PO Box 788

Sample ID: MAPEP-05-MaW13

	Waterville	ME	04903-0788						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	0.016		N	1					(mg/L)
Arsenic	<0.01			A					(mg/L)
Barium	2.47	2.63	A		-6.1	1.84 - 3.42			(mg/L)
Beryllium	0.379	0.417	A		-9.1	0.29 - 0.54			(mg/L)
Cadmium	0.270	0.303	A		-10.9	0.21 - 0.39			(mg/L)
Chromium	1.72	1.67	A		3.0	1.17 - 2.17			(mg/L)
Copper	1.86	1.92	A		-3.1	1.34 - 2.50			(mg/L)
Lead	1.15	1.21	A		-5.0	0.85 - 1.57			(mg/L)
Mercury	0.081	0.102	W		-20.6	0.07 - 0.13			(mg/L)
Nickel	0.846	0.968	A		-12.6	0.68 - 1.26			(mg/L)
Selenium	0.331	0.362	A		-8.6	0.25 - 0.47			(mg/L)
Thallium	<0.01		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.41	3.67	A		-7.1	2.57 - 4.77			(mg/L)
Zinc	1.19	1.33	A		-10.5	0.93 - 1.73			(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	NR	496				347.20 - 644.80			

Mixed Analyte Performance Evaluation Program

Laboratory Results

BNEL01 Northeast Laboratory Services, Inc.
PO Box 788
Waterville ME 04903-0788

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

CDHS01

California Department of Health Services

Sample ID: MAPEP-05-MaW13

Sanitation & Radiation Lab.

Richmond CA 94804-6403

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.01		A						(mg/L)
Arsenic	<0.01		A						(mg/L)
Barium	2.65	2.63	A		0.8	1.84 - 3.42			(mg/L)
Beryllium	0.40	0.417	A		-4.1	0.29 - 0.54			(mg/L)
Cadmium	0.30	0.303	A		-1.0	0.21 - 0.39			(mg/L)
Chromium	1.83	1.67	A		9.6	1.17 - 2.17			(mg/L)
Copper	1.91	1.92	A		-0.5	1.34 - 2.50			(mg/L)
Lead	1.19	1.21	A		-1.7	0.85 - 1.57			(mg/L)
Mercury	0.10	0.102	A		-2.0	0.07 - 0.13			(mg/L)
Nickel	0.95	0.968	A		-1.9	0.68 - 1.26			(mg/L)
Selenium	0.36	0.362	A		-0.6	0.25 - 0.47			(mg/L)
Thallium	<0.01		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.67	3.67	A		0.0	2.57 - 4.77			(mg/L)
Zinc	1.35	1.33	A		1.5	0.93 - 1.73			(mg/L)
Americium-241	1.729	1.72	A		0.5	1.20 - 2.24	0.138		(Bq/L)
Cesium-134	113	127	A		-11.0	88.90 - 165.10	1.41	L	(Bq/L)
Cesium-137	328	332	A		-1.2	232.40 - 431.60	2.09	L	(Bq/L)
Cobalt-57	229	227	A		0.9	158.90 - 295.10	1.13	L	(Bq/L)
Cobalt-60	254	251	A		1.2	175.70 - 326.30	2.01	L	(Bq/L)
Hydrogen-3	271.3	280	A		-3.1	196.00 - 364.00	12.8		(Bq/L)
Iron-55	78.02	75.9	A		2.8	53.13 - 98.67	3.39		(Bq/L)
Manganese-54	337	331	A		1.8	231.70 - 430.30	2.3	L	(Bq/L)
Nickel-63	1.48	9.0	W	2					(Bq/L)
Plutonium-238	0.0113	0.018	A	17			0.0165		(Bq/L)
Plutonium-239/240	2.73	2.4	A		13.8	1.68 - 3.12	0.34		(Bq/L)
Strontium-90	0.040		A				0.417		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.13	3.24	A		-3.4	2.27 - 4.21	0.217		(Bq/L)
Uranium-238	3.16	3.33	A		-5.1	2.33 - 4.33	0.219		(Bq/L)
Zinc-65	537	496	A		8.3	347.20 - 644.80	4.50	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

CDHS01 California Department of Health Services
Sanitation & Radiation Lab.
Richmond CA 94804-6403

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

CESL01

Lawrence Livermore National Laboratory - EMRL
7000 East Avenue

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	109.	127	A		-14.2	88.90 - 165.10	7.61		(Bq/L)
Cesium-137	324.	332	A		-2.4	232.40 - 431.60	34.0		(Bq/L)
Cobalt-57	241.	227	A		6.2	158.90 - 295.10	19.9		(Bq/L)
Cobalt-60	253.	251	A		0.8	175.70 - 326.30	14.3		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	328.	331	A		-0.9	231.70 - 430.30	35.0		(Bq/L)
Plutonium-238	0.0156	0.018	A				0.00406		(Bq/L)
Plutonium-239/240	2.60	2.4	A		8.3	1.68 - 3.12	0.209		(Bq/L)
Techneium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	534.	496	A		7.7	347.20 - 644.80	47.9		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

CESL01 Lawrence Livermore National Laboratory - EMRL
7000 East Avenue
Livermore CA 94551

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:
A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low
H = Uncertainty potentially too high
Q = Participant should evaluate reported value
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

CHMH01

CH2M Hill 222-S Laboratory
PO Box 1500

Sample ID: MAPEP-05-MaW13

Richland	WA	99352							
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-Total	0.273	0.27	A		1.1	0.19 - 0.35	.0197		(mg/L)
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.96	1.72	A		14.0	1.20 - 2.24	.0903		(Bq/L)
Cesium-134	123	127	A		-3.2	88.90 - 165.10	1.12	L	(Bq/L)
Cesium-137	352	332	A		6.0	232.40 - 431.60	2.48	L	(Bq/L)
Cobalt-57	240	227	A		5.7	158.90 - 295.10	1.48	L	(Bq/L)
Cobalt-60	258	251	A		2.8	175.70 - 326.30	1.51	L	(Bq/L)
Hydrogen-3	2660	280	N		850.0	196.00 - 364.00	254		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	357	331	A		7.9	231.70 - 430.30	2.53	L	(Bq/L)
Plutonium-238	NR	0.018							
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	1.25E-06	42.9	N		-100.0	30.03 - 55.77	6.25E-08		(Bq/L)
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	546	496	A		10.1	347.20 - 644.80	4.8	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

CHMH01 CH2M Hill 222-S Laboratory
PO Box 1500
Richland WA 99352

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

CMRC01

Carlsbad Environmental Monitoring and Research Center
1400 University Dr.

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.69	1.72	A		-1.7	1.20 - 2.24	.051		(Bq/L)
Cesium-134	115.3	127	A		-9.2	88.90 - 165.10	2	L	(Bq/L)
Cesium-137	326.6	332	A		-1.6	232.40 - 431.60	4.3	L	(Bq/L)
Cobalt-57	221.8	227	A		-2.3	158.90 - 295.10	3.2	L	(Bq/L)
Cobalt-60	249.5	251	A		-0.6	175.70 - 326.30	2.9	L	(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	338.8	331	A		2.4	231.70 - 430.30	4.3	L	(Bq/L)
Plutonium-238	.024	0.018	A				.004		(Bq/L)
Plutonium-239/240	2.58	2.4	A		7.5	1.68 - 3.12	.063	L	(Bq/L)
Strontium-90	.094		A				.033		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.35	3.24	A		3.4	2.27 - 4.21	.098	L	(Bq/L)
Uranium-235	.199						.017		(Bq/L)
Uranium-238	3.51	3.33	A		5.4	2.33 - 4.33	.103	L	(Bq/L)
Zinc-65	555.1	496	A		11.9	347.20 - 644.80	7.8	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

CMRC01 Carlsbad Environmental Monitoring and Research Center
1400 University Dr.
Carlsbad NM 88220

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

CORE02

STL Denver

4955 Yarrow St

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	0.0103		N	1			0.0010		(mg/L)
Barium	2.49	2.63	A		-5.3	1.84 - 3.42	0.25		(mg/L)
Beryllium	0.390	0.417	A		-6.5	0.29 - 0.54	0.039		(mg/L)
Cadmium	0.275	0.303	A		-9.2	0.21 - 0.39	0.028		(mg/L)
Chromium	1.73	1.67	A		3.6	1.17 - 2.17	0.17		(mg/L)
Copper	1.70	1.92	A		-11.5	1.34 - 2.50	0.17		(mg/L)
Lead	1.12	1.21	A		-7.4	0.85 - 1.57	0.11		(mg/L)
Mercury	NR	0.102				0.07 - 0.13			
Nickel	0.868	0.968	A		-10.3	0.68 - 1.26	0.087		(mg/L)
Selenium	0.321	0.362	A		-11.3	0.25 - 0.47	0.032		(mg/L)
Silver	0.425						0.043		(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.44	3.67	A		-6.3	2.57 - 4.77	0.34		(mg/L)
Zinc	1.22	1.33	A		-8.3	0.93 - 1.73	0.12		(mg/L)
Americium-241	1.828	1.72	A		6.3	1.20 - 2.24	0.169		(Bq/L)
Cesium-134	119	127	A		-6.3	88.90 - 165.10	3.8		(Bq/L)
Cesium-137	332.7	332	A		0.2	232.40 - 431.60	9.6	L	(Bq/L)
Cobalt-57	242.0	227	A		6.6	158.90 - 295.10	4.9	L	(Bq/L)
Cobalt-60	252.4	251	A		0.6	175.70 - 326.30	5.1	L	(Bq/L)
Hydrogen-3	268.556	280	A		-4.1	196.00 - 364.00	4.675	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	337.4	331	A		1.9	231.70 - 430.30	8.2	L	(Bq/L)
Plutonium-238	0.019	0.018	A	17			0.020		(Bq/L)
Plutonium-239/240	2.486	2.4	A		3.6	1.68 - 3.12	0.211		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.093	3.24	A		-4.5	2.27 - 4.21	0.597		(Bq/L)
Uranium-235	0.628						0.304		(Bq/L)
Uranium-238	4.536	3.33	N		36.2	2.33 - 4.33	0.724		(Bq/L)
Zinc-65	531.2	496	A		7.1	347.20 - 644.80	9.5	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

CORE02 STL Denver
4955 Yarrow St
Arvada CO 80002

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

DAFI01

Davis & Floyd, Inc.
PO Drawer 428

Sample ID: MAPEP-05-MaW13

	Greenwood	SC	29648						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.0050		A						(mg/L)
Arsenic	<0.0050		A						(mg/L)
Barium	2.57	2.63	A		-2.3	1.84 - 3.42			(mg/L)
Beryllium	0.389	0.417	A		-6.7	0.29 - 0.54			(mg/L)
Cadmium	0.291	0.303	A		-4.0	0.21 - 0.39			(mg/L)
Chromium	1.76	1.67	A		5.4	1.17 - 2.17			(mg/L)
Copper	1.87	1.92	A		-2.6	1.34 - 2.50			(mg/L)
Lead	1.14	1.21	A		-5.8	0.85 - 1.57			(mg/L)
Mercury	0.093	0.102	A		-8.8	0.07 - 0.13			(mg/L)
Nickel	0.916	0.968	A		-5.4	0.68 - 1.26			(mg/L)
Selenium	0.329	0.362	A		-9.1	0.25 - 0.47			(mg/L)
Thallium	<0.0040		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.67	3.67	A		0.0	2.57 - 4.77			(mg/L)
Zinc	1.30	1.33	A		-2.3	0.93 - 1.73			(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	NR	496				347.20 - 644.80			

Mixed Analyte Performance Evaluation Program

Laboratory Results

DAFI01

Davis & Floyd, Inc.
PO Drawer 428
Greenwood

SC 29648

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

EMBW01

CH2M Hill, Mound Inc., Mound, Environmental Monitorin

CH2M Hill Mound, Inc.

Sample ID: MAPEP-05-MaW13

	Miamisburg	OH	45343-3030						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	297.110	280	A		6.1	196.00 - 364.00	29.889		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-238	0.056	0.018	A				0.0123		(Bq/L)
Plutonium-239/240	10.080	2.4	N		320.0	1.68 - 3.12	0.764		(Bq/L)
Techneium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.660	3.24	A		13.0	2.27 - 4.21	0.272		(Bq/L)
Uranium-238	3.777	3.33	A		13.4	2.33 - 4.33	0.28		(Bq/L)
Zinc-65	NR	496				347.20 - 644.80			

Mixed Analyte Performance Evaluation Program

Laboratory Results

EMBW01 CH2M Hill, Mound Inc., Mound, Environmental Monitorin
CH2M Hill Mound, Inc.
Miamisburg OH 45343-3030

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

EPAL01

U. S. EPA Office of Radiation and Indoor Air
944 E. Harmon Ave.

Sample ID: MAPEP-05-MaW13

Las Vegas		NV	89119-6721		Bias (%)	Acceptance Range	Unc. Value	Unc. Flag	Units
Analyte	Result	Ref Value	Flag	Flag Text					
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	107.48	127	A		-15.4	88.90 - 165.10	5.50		(Bq/L)
Cesium-137	309.74	332	A		-6.7	232.40 - 431.60	16.00		(Bq/L)
Cobalt-57	214.73	227	A		-5.4	158.90 - 295.10	10.27		(Bq/L)
Cobalt-60	245.64	251	A		-2.1	175.70 - 326.30	11.63		(Bq/L)
Hydrogen-3	293.2	280	A		4.7	196.00 - 364.00	11.03		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	318.55	331	A		-3.8	231.70 - 430.30	16.08		(Bq/L)
Plutonium-238	0.0163	0.018	A				0.00389		(Bq/L)
Plutonium-239/240	2.33	2.4	A		-2.9	1.68 - 3.12	0.180		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.19	3.24	A		-1.5	2.27 - 4.21	0.225		(Bq/L)
Uranium-238	3.33	3.33	A		0.0	2.33 - 4.33	0.234		(Bq/L)
Zinc-65	511.44	496	A		3.1	347.20 - 644.80	24.63		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

EPAL01

U. S. EPA Office of Radiation and Indoor Air

944 E. Harmon Ave.

Las Vegas

NV

89119-6721

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ERAD01

Lawrence Livermore National Laboratory ERAD
7000 East Ave., L-232

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.01	3.24	A		-7.1	2.27 - 4.21	0.0227	L	(Bq/L)
Uranium-238	3.18	3.33	A		-4.5	2.33 - 4.33	0.0160	L	(Bq/L)
Zinc-65	NR	496				347.20 - 644.80			

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ERCL01

Public Health Laboratories

1610 N.E. 150 th Street

Sample ID: MAPEP-05-MaW13

	Shoreline	WA	98155-9701						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.0001		A						(mg/L)
Arsenic	0.008		A				0.001		(mg/L)
Barium	2.689	2.63	A		2.2	1.84 - 3.42	0.269		(mg/L)
Beryllium	0.396	0.417	A		-5.0	0.29 - 0.54	0.040		(mg/L)
Cadmium	0.290	0.303	A		-4.3	0.21 - 0.39	0.029		(mg/L)
Chromium	1.819	1.67	A		8.9	1.17 - 2.17	0.182		(mg/L)
Copper	1.950	1.92	A		1.6	1.34 - 2.50	0.195		(mg/L)
Lead	1.238	1.21	A		2.3	0.85 - 1.57	0.124		(mg/L)
Mercury	NR	0.102				0.07 - 0.13			
Nickel	0.958	0.968	A		-1.0	0.68 - 1.26	0.096		(mg/L)
Selenium	0.340	0.362	A		-6.1	0.25 - 0.47	0.034		(mg/L)
Thallium	<0.001		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.726	3.67	A		1.5	2.57 - 4.77	0.373		(mg/L)
Zinc	1.291	1.33	A		-2.9	0.93 - 1.73	0.129		(mg/L)
Americium-241	1.27	1.72	W		-26.2	1.20 - 2.24	0.06		(Bq/L)
Cesium-134	99.3	127	W		-21.8	88.90 - 165.10	1.2	L	(Bq/L)
Cesium-137	317	332	A		-4.5	232.40 - 431.60	3	L	(Bq/L)
Cobalt-57	228	227	A		0.4	158.90 - 295.10	2	L	(Bq/L)
Cobalt-60	250	251	A		-0.4	175.70 - 326.30	1	L	(Bq/L)
Hydrogen-3	300	280	A		7.1	196.00 - 364.00	4	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	351	331	A		6.0	231.70 - 430.30	4	L	(Bq/L)
Nickel-63	34	9.0	N	4			4		(Bq/L)
Plutonium-238	0	0.018	A	17			0.02		(Bq/L)
Plutonium-239/240	2.27	2.4	A		-5.4	1.68 - 3.12	0.07		(Bq/L)
Strontium-90	-0.19		A				0.13		(Bq/L)
Technetium-99	32.9	42.9	W		-23.3	30.03 - 55.77	1.6		(Bq/L)
Uranium-234/233	3.37	3.24	A		4.0	2.27 - 4.21	0.08	L	(Bq/L)
Uranium-238	3.46	3.33	A		3.9	2.33 - 4.33	0.08	L	(Bq/L)
Zinc-65	572	496	A		15.3	347.20 - 644.80	4	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

ERCL01 Public Health Laboratories
1610 N.E. 150 th Street
Shoreline WA 98155-9701

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ERHD99

Radiation Protection Bureau ERHD NMS

Sample ID: MAPEP-05-MaW13

775 Brookfield Road AL6302D1

	Ottawa	Ontario	K1A 1C1						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.4	1.72	A		-18.6	1.20 - 2.24	0.7	H	(Bq/L)
Cesium-134	110.1	127	A		-13.3	88.90 - 165.10	2.6	L	(Bq/L)
Cesium-137	319.0	332	A		-3.9	232.40 - 431.60	10.1		(Bq/L)
Cobalt-57	228.8	227	A		0.8	158.90 - 295.10	6.7	L	(Bq/L)
Cobalt-60	238.9	251	A		-4.8	175.70 - 326.30	5.6	L	(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	329.5	331	A		-0.5	231.70 - 430.30	10.3		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	518.1	496	A		4.5	347.20 - 644.80	17.2		(Bq/L)

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ERLG01

Environmental Radiation Laboratory

Georgia Institute of Tech.

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.6	1.72	A		-7.0	1.20 - 2.24	0.2		(Bq/L)
Cesium-134	120	127	A		-5.5	88.90 - 165.10	20		(Bq/L)
Cesium-137	330	332	A		-0.6	232.40 - 431.60	40		(Bq/L)
Cobalt-57	230	227	A		1.3	158.90 - 295.10	20		(Bq/L)
Cobalt-60	250	251	A		-0.4	175.70 - 326.30	20		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	340	331	A		2.7	231.70 - 430.30	40		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Strontium-90	0		A				0.03		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	3.2	3.33	A		-3.9	2.33 - 4.33	0.2		(Bq/L)
Zinc-65	550	496	A		10.9	347.20 - 644.80	60		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

ERLG01 Environmental Radiation Laboratory
Georgia Institute of Tech.
Atlanta GA 30332

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:
A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low
H = Uncertainty potentially too high
Q = Participant should evaluate reported value
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ERPD99

Environmental Radiation Protection Division

Mubarak Al-Kabeer Street, al-Awqaf Compl

Sharq

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	42	127	N		-66.9	88.90 - 165.10	5		(Bq/L)
Cesium-137	142	332	N		-57.2	232.40 - 431.60	3	L	(Bq/L)
Cobalt-57	73.3	227	N		-67.7	158.90 - 295.10	3		(Bq/L)
Cobalt-60	105.5	251	N		-58.0	175.70 - 326.30	6		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	112	331	N		-66.2	231.70 - 430.30	7		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	174.5	496	N		-64.8	347.20 - 644.80	8.7		(Bq/L)

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

FDHE01

Florida Dept of Health Environmental Laboratory
PO Box 680069

Sample ID: MAPEP-05-MaW13

Orlando	FL	32868-0069							
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.8	1.72	A		4.7	1.20 - 2.24	0.7	H	(Bq/L)
Cesium-134	114.7	127	A		-9.7	88.90 - 165.10	0.7	L	(Bq/L)
Cesium-137	325.6	332	A		-1.9	232.40 - 431.60	1.1	L	(Bq/L)
Cobalt-57	223.3	227	A		-1.6	158.90 - 295.10	0.7	L	(Bq/L)
Cobalt-60	251.9	251	A		0.4	175.70 - 326.30	0.9	L	(Bq/L)
Hydrogen-3	302.8	280	A		8.1	196.00 - 364.00	5.0	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	334.2	331	A		1.0	231.70 - 430.30	1.1	L	(Bq/L)
Nickel-63	1.8	9.0	N	4			0.5		(Bq/L)
Plutonium-238	NR	0.018	N	11					
Plutonium-239/240	2.4	2.4	A		0.0	1.68 - 3.12	0.1		(Bq/L)
Strontium-90	0.1		A				0.1		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	2.3	3.24	W		-29.0	2.27 - 4.21	0.2		(Bq/L)
Uranium-238	2.4	3.33	W		-27.9	2.33 - 4.33	0.2		(Bq/L)
Zinc-65	533.0	496	A		7.5	347.20 - 644.80	2.8	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

FDHE01 Florida Dept of Health Environmental Laboratory
PO Box 680069
Orlando FL 32868-0069

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

FDOH01

Florida Dept. of Health, Mobile Environmental Radiologic
PO Box 680069

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	FL	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63					1.84 - 3.42			
Beryllium	NR	0.417					0.29 - 0.54			
Cadmium	NR	0.303					0.21 - 0.39			
Chromium	NR	1.67					1.17 - 2.17			
Copper	NR	1.92					1.34 - 2.50			
Lead	NR	1.21					0.85 - 1.57			
Mercury	NR	0.102					0.07 - 0.13			
Nickel	NR	0.968					0.68 - 1.26			
Selenium	NR	0.362					0.25 - 0.47			
Uranium-238	NR	0.268								
Vanadium	NR	3.67					2.57 - 4.77			
Zinc	NR	1.33					0.93 - 1.73			
Americium-241	19.2	1.72	N			1016.3	1.20 - 2.24	0.7		(Bq/L)
Cesium-134	111	127	A			-12.6	88.90 - 165.10	1	L	(Bq/L)
Cesium-137	322	332	A			-3.0	232.40 - 431.60	7	L	(Bq/L)
Cobalt-57	213	227	A			-6.2	158.90 - 295.10	4	L	(Bq/L)
Cobalt-60	255	251	A			1.6	175.70 - 326.30	4	L	(Bq/L)
Hydrogen-3	NR	280					196.00 - 364.00			
Iron-55	NR	75.9					53.13 - 98.67			
Manganese-54	330	331	A			-0.3	231.70 - 430.30	7	L	(Bq/L)
Plutonium-239/240	NR	2.4					1.68 - 3.12			
Technetium-99	NR	42.9					30.03 - 55.77			
Uranium-234/233	NR	3.24					2.27 - 4.21			
Uranium-238	193	3.33	N			5695.8	2.33 - 4.33	5	L	(Bq/L)
Zinc-65	533	496	A			7.5	347.20 - 644.80	10	L	(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

FERM01

Fluor Fernald
P.O. Box 538704

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-Total	.273	0.27	A		1.1	0.19 - 0.35	.011		(mg/L)
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	3.77	3.33	A		13.2	2.33 - 4.33	.19		(Bq/L)
Zinc-65	NR	496				347.20 - 644.80			

Mixed Analyte Performance Evaluation Program

Laboratory Results

FERM01 Fluor Fernald
P.O. Box 538704
Cincinnati OH 45253-8704

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

FNAL01

Fermi National Accelerator Laboratory (FermiLab)
PO Box 500, MS325

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	118	127	A		-7.1	88.90 - 165.10	6		(Bq/L)
Cesium-137	314	332	A		-5.4	232.40 - 431.60	27		(Bq/L)
Cobalt-57	222	227	A		-2.2	158.90 - 295.10	14		(Bq/L)
Cobalt-60	259	251	A		3.2	175.70 - 326.30	16		(Bq/L)
Hydrogen-3	288	280	A		2.9	196.00 - 364.00	10		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	325	331	A		-1.8	231.70 - 430.30	28		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	513	496	A		3.4	347.20 - 644.80	44		(Bq/L)

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

GENE01

General Engineering Laboratories, LLC
2040 Savage Road

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<.01		A						(mg/L)
Arsenic	<.005		A						(mg/L)
Barium	2.65	2.63	A		0.8	1.84 - 3.42			(mg/L)
Beryllium	.422	0.417	A		1.2	0.29 - 0.54			(mg/L)
Cadmium	.302	0.303	A		-0.3	0.21 - 0.39			(mg/L)
Chromium	1.89	1.67	A		13.2	1.17 - 2.17			(mg/L)
Copper	1.92	1.92	A		0.0	1.34 - 2.50			(mg/L)
Lead	1.21	1.21	A		0.0	0.85 - 1.57			(mg/L)
Mercury	NR	0.102				0.07 - 0.13			
Nickel	.965	0.968	A		-0.3	0.68 - 1.26			(mg/L)
Selenium	.352	0.362	A		-2.8	0.25 - 0.47			(mg/L)
Thallium	<.01		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.84	3.67	A		4.6	2.57 - 4.77			(mg/L)
Zinc	1.34	1.33	A		0.8	0.93 - 1.73			(mg/L)
Americium-241	1.803	1.72	A		4.8	1.20 - 2.24	0.057		(Bq/L)
Cesium-134	107.0	127	A		-15.7	88.90 - 165.10	4.7		(Bq/L)
Cesium-137	318.0	332	A		-4.2	232.40 - 431.60	11.4		(Bq/L)
Cobalt-57	204.0	227	A		-10.1	158.90 - 295.10	6.8		(Bq/L)
Cobalt-60	247.3	251	A		-1.5	175.70 - 326.30	7.5		(Bq/L)
Hydrogen-3	279.7	280	A		-0.1	196.00 - 364.00	4.7	L	(Bq/L)
Iron-55	78.7	75.9	A		3.7	53.13 - 98.67	8.9		(Bq/L)
Manganese-54	302.0	331	A		-8.8	231.70 - 430.30	13.7		(Bq/L)
Nickel-63	1.6	9.0	A	17					2.1 (Bq/L)
Plutonium-238	0.016	0.018	A	17					0.006 (Bq/L)
Plutonium-239/240	2.400	2.4	A		0.0	1.68 - 3.12	0.057	L	(Bq/L)
Strontium-90	0.14		A						0.06 (Bq/L)
Technetium-99	37.5	42.9	A		-12.6	30.03 - 55.77	0.9	L	(Bq/L)
Uranium-234/233	3.273	3.24	A		1.0	2.27 - 4.21	0.070	L	(Bq/L)
Uranium-238	3.400	3.33	A		2.1	2.33 - 4.33	0.071	L	(Bq/L)
Zinc-65	477.0	496	A		-3.8	347.20 - 644.80	17.8		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

GENE01 General Engineering Laboratories, LLC
2040 Savage Road
Charleston SC 29407

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:
A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low
H = Uncertainty potentially too high
Q = Participant should evaluate reported value
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

GPCL01

Georgia Power Company Environmental Laboratory
5131 Maner Road

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	116.8	127	A		-8.0	88.90 - 165.10	2.7	L	(Bq/L)
Cesium-137	327.7	332	A		-1.3	232.40 - 431.60	6.7	L	(Bq/L)
Cobalt-57	238.6	227	A		5.1	158.90 - 295.10	4.6	L	(Bq/L)
Cobalt-60	255.5	251	A		1.8	175.70 - 326.30	5.1	L	(Bq/L)
Hydrogen-3	275.8	280	A		-1.5	196.00 - 364.00	7	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	335.4	331	A		1.3	231.70 - 430.30	7.4	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	528.9	496	A		6.6	347.20 - 644.80	12.2	L	(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

HCAL01

Hazards Control Analytical Lab

Lawrence Livermore National

Livermore

CA

94551

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	285	280	A		1.8	196.00 - 364.00	15		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	NR	496				347.20 - 644.80			

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

HECR01

SC Dept. Health and Environmental Control Radiological
2600 Bull St.

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	122	127	A		-3.9	88.90 - 165.10	5.30		(Bq/L)
Cesium-137	312	332	A		-6.0	232.40 - 431.60	20.0		(Bq/L)
Cobalt-57	224	227	A		-1.3	158.90 - 295.10	12.5		(Bq/L)
Cobalt-60	245	251	A		-2.4	175.70 - 326.30	10.1		(Bq/L)
Hydrogen-3	278	280	A		-0.7	196.00 - 364.00	10.4		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	324	331	A		-2.1	231.70 - 430.30	23.0		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	525	496	A		5.8	347.20 - 644.80	35.4		(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

HWRL01

Lawrence Livermore National Laboratory - HWRL
7000 East Avenue

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	0.031		N	1					(mg/L)
Arsenic	0.011		N	1					(mg/L)
Barium	2.49	2.63	A		-5.3	1.84 - 3.42			(mg/L)
Beryllium	0.394	0.417	A		-5.5	0.29 - 0.54			(mg/L)
Cadmium	0.319	0.303	A		5.3	0.21 - 0.39			(mg/L)
Chromium	1.84	1.67	A		10.2	1.17 - 2.17			(mg/L)
Copper	1.82	1.92	A		-5.2	1.34 - 2.50			(mg/L)
Lead	1.33	1.21	A		9.9	0.85 - 1.57			(mg/L)
Mercury	0.0810	0.102	W		-20.6	0.07 - 0.13			(mg/L)
Nickel	1.02	0.968	A		5.4	0.68 - 1.26			(mg/L)
Selenium	0.344	0.362	A		-5.0	0.25 - 0.47			(mg/L)
Thallium	0.006		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.61	3.67	A		-1.6	2.57 - 4.77			(mg/L)
Zinc	1.37	1.33	A		3.0	0.93 - 1.73			(mg/L)
Americium-241	1.60	1.72	A		-7.0	1.20 - 2.24	0.133		(Bq/L)
Cesium-134	115.	127	A		-9.4	88.90 - 165.10	5.8		(Bq/L)
Cesium-137	299.	332	A		-9.9	232.40 - 431.60	15.0		(Bq/L)
Cobalt-57	215.	227	A		-5.3	158.90 - 295.10	10.7		(Bq/L)
Cobalt-60	229.	251	A		-8.8	175.70 - 326.30	11.5		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	324.	331	A		-2.1	231.70 - 430.30	16.2		(Bq/L)
Plutonium-238	0.0140	0.018	A				0.00317		(Bq/L)
Plutonium-239/240	2.52	2.4	A		5.0	1.68 - 3.12	0.0820		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.03	3.24	A		-6.5	2.27 - 4.21	0.180		(Bq/L)
Uranium-238	3.13	3.33	A		-6.0	2.33 - 4.33	0.186		(Bq/L)
Zinc-65	494.	496	A		-0.4	347.20 - 644.80	24.7		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

HWRL01

Lawrence Livermore National Laboratory - HWRL
7000 East Avenue
Livermore CA 94551

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

IAEA99

International Atomic Energy Agency
Agency's Laboratories Seibersdorf

Sample ID: MAPEP-05-MaW13

	Seibersdorf	Austria	A-2444						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.0037		A						(mg/L)
Arsenic	<0.0035		A						(mg/L)
Barium	2.697	2.63	A		2.5	1.84 - 3.42	0.035	L	(mg/L)
Beryllium	0.445	0.417	A		6.7	0.29 - 0.54	0.017		(mg/L)
Cadmium	0.303	0.303	A		0.0	0.21 - 0.39	0.005	L	(mg/L)
Chromium	1.856	1.67	A		11.1	1.17 - 2.17	0.019	L	(mg/L)
Copper	2.030	1.92	A		5.7	1.34 - 2.50	0.037	L	(mg/L)
Lead	1.176	1.21	A		-2.8	0.85 - 1.57	0.019	L	(mg/L)
Mercury	NR	0.102				0.07 - 0.13			
Nickel	0.991	0.968	A		2.4	0.68 - 1.26	0.014	L	(mg/L)
Selenium	0.366	0.362	A		1.1	0.25 - 0.47	0.013		(mg/L)
Thallium	<0.00007		A						(mg/L)
Uranium-238	0.268	0.268	A		0.0		0.003		(mg/L)
Vanadium	3.692	3.67	A		0.6	2.57 - 4.77	0.015	L	(mg/L)
Zinc	1.302	1.33	A		-2.1	0.93 - 1.73	0.027	L	(mg/L)
Americium-241	1.86	1.72	A		8.1	1.20 - 2.24	0.03	L	(Bq/L)
Cesium-134	129.3	127	A		1.8	88.90 - 165.10	2.5	L	(Bq/L)
Cesium-137	338.2	332	A		1.9	232.40 - 431.60	7.1	L	(Bq/L)
Cobalt-57	246.5	227	A		8.6	158.90 - 295.10	4.7	L	(Bq/L)
Cobalt-60	271.8	251	A		8.3	175.70 - 326.30	6.1	L	(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	347	331	A		4.8	231.70 - 430.30	7.6	L	(Bq/L)
Plutonium-238	0.03	0.018	A	17			0.03		(Bq/L)
Plutonium-239/240	2.60	2.4	A		8.3	1.68 - 3.12	0.03	L	(Bq/L)
Strontium-90	-0.025		A				0.08		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.51	3.24	A		8.3	2.27 - 4.21	0.08	L	(Bq/L)
Uranium-238	3.58	3.33	A		7.5	2.33 - 4.33	0.07	L	(Bq/L)
Zinc-65	547	496	A		10.3	347.20 - 644.80	13	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

IAEA99

International Atomic Energy Agency
Agency's Laboratories Seibersdorf
Seibersdorf Austria A-2444

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

IDGR01

Oak Ridge National Laboratory-Internal Dosimetry Group
Bethel Valley Road

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.8195	1.72	A		5.8	1.20 - 2.24	0.1733		(Bq/L)
Cesium-134	110.92	127	A		-12.7	88.90 - 165.10	4.10		(Bq/L)
Cesium-137	323.11	332	A		-2.7	232.40 - 431.60	9.87		(Bq/L)
Cobalt-57	227.51	227	A		0.2	158.90 - 295.10	5.45	L	(Bq/L)
Cobalt-60	247.76	251	A		-1.3	175.70 - 326.30	5.98	L	(Bq/L)
Hydrogen-3	339.50	280	W		21.3	196.00 - 364.00	53.67		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	333.29	331	A		0.7	231.70 - 430.30	10.61		(Bq/L)
Plutonium-238	0.0344	0.018	A				0.0053		(Bq/L)
Plutonium-239/240	2.3368	2.4	A		-2.6	1.68 - 3.12	0.2224		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.2323	3.24	A		-0.2	2.27 - 4.21	0.3314		(Bq/L)
Uranium-238	3.3489	3.33	A		0.6	2.33 - 4.33	0.3431		(Bq/L)
Zinc-65	563.43	496	A		13.6	347.20 - 644.80	20.22		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

IDGR01 Oak Ridge National Laboratory-Internal Dosimetry Group
Bethel Valley Road
Oak Ridge TN 37831-6105

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ISUP01

ISU - Department of Physics/Health Physics/EAL

785 S. 8th Ave, Rm 120

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	108.9	127	A		-14.3	88.90 - 165.10	1.2	L	(Bq/L)
Cesium-137	317.2	332	A		-4.5	232.40 - 431.60	6.7	L	(Bq/L)
Cobalt-57	223.3	227	A		-1.6	158.90 - 295.10	4.7	L	(Bq/L)
Cobalt-60	252.4	251	A		0.6	175.70 - 326.30	3.8	L	(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	326.9	331	A		-1.2	231.70 - 430.30	6.4	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	532.1	496	A		7.3	347.20 - 644.80	10.4	L	(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

JAEC99

Radiation Measurements Laboratory
Jordan Atomic Energy Commission

Sample ID: MAPEP-05-MaW13

Amman

00962 6

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.78	1.72	A		3.5	1.20 - 2.24	0.4	H	(Bq/L)
Cesium-134	102.1	127	A		-19.6	88.90 - 165.10	1.3	L	(Bq/L)
Cesium-137	323.7	332	A		-2.5	232.40 - 431.60	7.6	L	(Bq/L)
Cobalt-57	183.5	227	A		-19.2	158.90 - 295.10	2.7	L	(Bq/L)
Cobalt-60	245.7	251	A		-2.1	175.70 - 326.30	2.5	L	(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	281.5	331	A		-15.0	231.70 - 430.30	4.1	L	(Bq/L)
Plutonium-238	0.562	0.018	N	4			0.00588		(Bq/L)
Plutonium-239/240	2.32	2.4	A		-3.3	1.68 - 3.12	0.0196	L	(Bq/L)
Strontium-90	0.033		N	1			0.00588		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	2.76	3.24	A		-14.8	2.27 - 4.21	0.098		(Bq/L)
Uranium-235	0.29						0.0392		(Bq/L)
Uranium-238	2.93	3.33	A		-12.0	2.33 - 4.33	0.098		(Bq/L)
Zinc-65	419.4	496	A		-15.4	347.20 - 644.80	6.7	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

JAEC99 Radiation Measurements Laboratory
Jordan Atomic Energy Commission
Amman 00962 6

Sample ID: MAPEP-05-MaW13

Flags for Ni-63/Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 ± 1.1 Bq/L for Ni-63 and 0.018 ± 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
 - 2 - False Negative
 - 4 - Sensitivity Evaluation
 - 5 - Total Metal
 - 6 - Not Evaluated
 - 7 - DL > CLP Limit
 - 9 - Check QL
 - 10 - Check Isomer
 - 11 - False Positive Test, Value Not Reported
 - 14 - Solubility issue
 - 15 - Refractory
 - 16 - Reported zero uncertainty
 - 17 - NOT DETECTED, reported a statistical zero result
 - 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

JLNN01

Jefferson Laboratory

12000 Jefferson Ave

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	115.9	127	A		-8.7	88.90 - 165.10	2.18	L	(Bq/L)
Cesium-137	327.8	332	A		-1.3	232.40 - 431.60	7.11	L	(Bq/L)
Cobalt-57	234.4	227	A		3.3	158.90 - 295.10	4.37	L	(Bq/L)
Cobalt-60	249.8	251	A		-0.5	175.70 - 326.30	3.87	L	(Bq/L)
Hydrogen-3	1864.8	280	N		566.0	196.00 - 364.00	93.2		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	331.6	331	A		0.2	231.70 - 430.30	6.86	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	510.6	496	A		2.9	347.20 - 644.80	11.8	L	(Bq/L)

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

LAWR01

LAWRENCE BERKELEY NATIONAL LABORATORY

1 CYCLOTRON DR.

Sample ID: MAPEP-05-MaW13

Analyst	BERKELEY	CA	94720-						
Analyst	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.65	1.72	A		-4.1	1.20 - 2.24	0.08		(Bq/L)
Cesium-134	116	127	A		-8.7	88.90 - 165.10	8		(Bq/L)
Cesium-137	333	332	A		0.3	232.40 - 431.60	21		(Bq/L)
Cobalt-57	229	227	A		0.9	158.90 - 295.10	15		(Bq/L)
Cobalt-60	259	251	A		3.2	175.70 - 326.30	20		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	342	331	A		3.3	231.70 - 430.30	24		(Bq/L)
Plutonium-238	NR	0.018	N	18					
Plutonium-239/240	3.74	2.4	N		55.8	1.68 - 3.12	0.05	L	(Bq/L)
Techneium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.36	3.24	A		3.7	2.27 - 4.21	0.49		(Bq/L)
Uranium-238	3.15	3.33	A		-5.4	2.33 - 4.33	0.51		(Bq/L)
Zinc-65	555	496	A		11.9	347.20 - 644.80	42		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

LAWR01 LAWRENCE BERKELEY NATIONAL LABORATORY
1 CYCLOTRON DR.
BERKELEY CA 94720-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low
H = Uncertainty potentially too high
Q = Participant should evaluate reported value
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

LAWR02

Lawrence Livermore National Laboratory
7000 East Avenue

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	CA	Flag	Flag Text	94551-	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63						1.84 - 3.42			
Beryllium	NR	0.417						0.29 - 0.54			
Cadmium	NR	0.303						0.21 - 0.39			
Chromium	NR	1.67						1.17 - 2.17			
Copper	NR	1.92						1.34 - 2.50			
Lead	NR	1.21						0.85 - 1.57			
Mercury	NR	0.102						0.07 - 0.13			
Nickel	NR	0.968						0.68 - 1.26			
Selenium	NR	0.362						0.25 - 0.47			
Uranium-238	NR	0.268									
Vanadium	NR	3.67						2.57 - 4.77			
Zinc	NR	1.33						0.93 - 1.73			
Americium-241	NR	1.72						1.20 - 2.24			
Cesium-134	119	127	A				-6.3	88.90 - 165.10	3.8		(Bq/L)
Cesium-137	329	332	A				-0.9	232.40 - 431.60	10		(Bq/L)
Cobalt-57	234	227	A				3.1	158.90 - 295.10	7.3		(Bq/L)
Cobalt-60	253	251	A				0.8	175.70 - 326.30	7.9		(Bq/L)
Hydrogen-3	NR	280						196.00 - 364.00			
Iron-55	NR	75.9						53.13 - 98.67			
Manganese-54	332	331	A				0.3	231.70 - 430.30	10		(Bq/L)
Plutonium-238	.013	0.018	A						.004		(Bq/L)
Plutonium-239/240	2.64	2.4	A				10.0	1.68 - 3.12	.11		(Bq/L)
Techneium-99	NR	42.9						30.03 - 55.77			
Uranium-234/233	NR	3.24						2.27 - 4.21			
Uranium-238	NR	3.33						2.33 - 4.33			
Zinc-65	522	496	A				5.2	347.20 - 644.80	17		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

LAWR02 Lawrence Livermore National Laboratory
7000 East Avenue
Livermore CA 94551-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

LOCK01

ICP Analytical Laboratories Department
P.O. Box 1625

Sample ID: MAPEP-05-MaW13

	Idaho Falls	ID	83415-5210						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.005		A						(mg/L)
Arsenic	<0.004		A						(mg/L)
Barium	2.76	2.63	A		4.9	1.84 - 3.42	0.28		(mg/L)
Beryllium	0.44	0.417	A		5.5	0.29 - 0.54	0.04		(mg/L)
Cadmium	0.31	0.303	A		2.3	0.21 - 0.39	0.03		(mg/L)
Chromium	1.89	1.67	A		13.2	1.17 - 2.17	0.19		(mg/L)
Copper	1.87	1.92	A		-2.6	1.34 - 2.50	0.19		(mg/L)
Lead	1.23	1.21	A		1.7	0.85 - 1.57	0.12		(mg/L)
Mercury	0.093	0.102	A		-8.8	0.07 - 0.13	0.009		(mg/L)
Nickel	0.99	0.968	A		2.3	0.68 - 1.26	0.10		(mg/L)
Selenium	0.37	0.362	A		2.2	0.25 - 0.47	0.04		(mg/L)
Thallium	0.006		A				0.001		(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.77	3.67	A		2.7	2.57 - 4.77	0.38		(mg/L)
Zinc	1.36	1.33	A		2.3	0.93 - 1.73	0.14		(mg/L)
Americium-241	1.9	1.72	A		10.5	1.20 - 2.24	0.2		(Bq/L)
Cesium-134	121	127	A		-4.7	88.90 - 165.10	8		(Bq/L)
Cesium-137	334	332	A		0.6	232.40 - 431.60	22		(Bq/L)
Cobalt-57	234	227	A		3.1	158.90 - 295.10	13		(Bq/L)
Cobalt-60	259	251	A		3.2	175.70 - 326.30	18		(Bq/L)
Hydrogen-3	250	280	A		-10.7	196.00 - 364.00	1.8	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	338	331	A		2.1	231.70 - 430.30	22		(Bq/L)
Plutonium-238	0.018	0.018	A	17			0.026		(Bq/L)
Plutonium-239/240	2.22	2.4	A		-7.5	1.68 - 3.12	0.26		(Bq/L)
Strontium-90	0.24		A				0.15		(Bq/L)
Technetium-99	43.9	42.9	A		2.3	30.03 - 55.77	0.29	L	(Bq/L)
Uranium-234/233	3.13	3.24	A		-3.4	2.27 - 4.21	0.37		(Bq/L)
Uranium-238	3.22	3.33	A		-3.3	2.33 - 4.33	0.43		(Bq/L)
Zinc-65	535	496	A		7.9	347.20 - 644.80	39		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

LOCK01 ICP Analytical Laboratories Department
P.O. Box 1625
Idaho Falls ID 83415-5210

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

LOCK03

RADIATION MEASUREMENTS LABORATORY/AEDL

Sample ID: MAPEP-05-MaW13

INEEL

	Idaho Falls	ID	83415-7111						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.50	1.72	A		-12.8	1.20 - 2.24	.10		(Bq/L)
Cesium-134	118	127	A		-7.1	88.90 - 165.10	9		(Bq/L)
Cesium-137	318	332	A		-4.2	232.40 - 431.60	23		(Bq/L)
Cobalt-57	224	227	A		-1.3	158.90 - 295.10	16		(Bq/L)
Cobalt-60	250	251	A		-0.4	175.70 - 326.30	18		(Bq/L)
Hydrogen-3	320	280	A		14.3	196.00 - 364.00	50		(Bq/L)
Iron-55	81.3	75.9	A		7.1	53.13 - 98.67	4.9		(Bq/L)
Manganese-54	323	331	A		-2.4	231.70 - 430.30	23		(Bq/L)
Nickel-63	4.4	9.0	A	17			1.7		(Bq/L)
Plutonium-238	0.011	0.018	A	17			0.015		(Bq/L)
Plutonium-239/240	2.36	2.4	A		-1.7	1.68 - 3.12	.18		(Bq/L)
Strontium-90	-.2		A				.4		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.23	3.24	A		-0.3	2.27 - 4.21	.23		(Bq/L)
Uranium-238	3.33	3.33	A		0.0	2.33 - 4.33	.23		(Bq/L)
Zinc-65	509	496	A		2.6	347.20 - 644.80	37		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

LOCK03 RADIATION MEASUREMENTS LABORATORY/AEDL
INEEL
Idaho Falls ID 83415-7111

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:
A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low
H = Uncertainty potentially too high
Q = Participant should evaluate reported value
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

MART01

USEC, Inc.

Sample ID: MAPEP-05-MaW13

Lab COC, Bldg. X-710, Rm 222

	Piketon	OH	45661-						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	0.0174		N	1					(mg/L)
Barium	2.69	2.63	A		2.3	1.84 - 3.42			(mg/L)
Beryllium	0.423	0.417	A		1.4	0.29 - 0.54			(mg/L)
Cadmium	0.316	0.303	A		4.3	0.21 - 0.39			(mg/L)
Chromium	1.90	1.67	A		13.8	1.17 - 2.17			(mg/L)
Copper	1.98	1.92	A		3.1	1.34 - 2.50			(mg/L)
Lead	1.25	1.21	A		3.3	0.85 - 1.57			(mg/L)
Mercury	0.160	0.102	N		56.9	0.07 - 0.13			(mg/L)
Nickel	1.00	0.968	A		3.3	0.68 - 1.26			(mg/L)
Selenium	0.362	0.362	A		0.0	0.25 - 0.47			(mg/L)
Thallium	0.0265		N	1					(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.78	3.67	A		3.0	2.57 - 4.77			(mg/L)
Zinc	1.34	1.33	A		0.8	0.93 - 1.73			(mg/L)
Americium-241	1.78	1.72	A		3.5	1.20 - 2.24	0.13		(Bq/L)
Cesium-134	107	127	A		-15.7	88.90 - 165.10	7		(Bq/L)
Cesium-137	303	332	A		-8.7	232.40 - 431.60	8	L	(Bq/L)
Cobalt-57	222	227	A		-2.2	158.90 - 295.10	13		(Bq/L)
Cobalt-60	249	251	A		-0.8	175.70 - 326.30	11		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	318	331	A		-3.9	231.70 - 430.30	9	L	(Bq/L)
Plutonium-238	0.013	0.018	A	17			0.005		(Bq/L)
Plutonium-239/240	2.53	2.4	A		5.4	1.68 - 3.12	0.2		(Bq/L)
Strontium-90	-0.04		A				0.06		(Bq/L)
Technetium-99	40.2	42.9	A		-6.3	30.03 - 55.77	0.76	L	(Bq/L)
Uranium-234/233	2.89	3.24	A		-10.8	2.27 - 4.21	0.21		(Bq/L)
Uranium-238	3.04	3.33	A		-8.7	2.33 - 4.33	0.23		(Bq/L)
Zinc-65	508	496	A		2.4	347.20 - 644.80	24		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

MART01 USEC, Inc.
Lab COC, Bldg. X-710, Rm 222
Piketon OH 45661-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

MART02

United States Enrichment Corporation
5600 Hobbs Road

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.005		A						(mg/L)
Arsenic	0.00927		A						(mg/L)
Barium	2.450	2.63	A		-6.8	1.84 - 3.42			(mg/L)
Beryllium	0.383	0.417	A		-8.2	0.29 - 0.54			(mg/L)
Cadmium	0.291	0.303	A		-4.0	0.21 - 0.39			(mg/L)
Chromium	1.730	1.67	A		3.6	1.17 - 2.17			(mg/L)
Copper	1.850	1.92	A		-3.6	1.34 - 2.50			(mg/L)
Lead	1.220	1.21	A		0.8	0.85 - 1.57			(mg/L)
Mercury	0.0964	0.102	A		-5.5	0.07 - 0.13			(mg/L)
Nickel	0.848	0.968	A		-12.4	0.68 - 1.26			(mg/L)
Selenium	0.334	0.362	A		-7.7	0.25 - 0.47			(mg/L)
Thallium	<0.002		A						(mg/L)
Uranium-Total	0.260	0.27	A		-3.7	0.19 - 0.35			(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.580	3.67	A		-2.5	2.57 - 4.77			(mg/L)
Zinc	1.140	1.33	A		-14.3	0.93 - 1.73			(mg/L)
Americium-241	1.65	1.72	A		-4.1	1.20 - 2.24	0.19		(Bq/L)
Cesium-134	115	127	A		-9.4	88.90 - 165.10	6.14		(Bq/L)
Cesium-137	316	332	A		-4.8	232.40 - 431.60	18.2		(Bq/L)
Cobalt-57	223	227	A		-1.8	158.90 - 295.10	12.4		(Bq/L)
Cobalt-60	244	251	A		-2.8	175.70 - 326.30	12.6		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	322	331	A		-2.7	231.70 - 430.30	17.6		(Bq/L)
Plutonium-238	0.0939	0.018	A				0.0303		(Bq/L)
Plutonium-239/240	2.04	2.4	A		-15.0	1.68 - 3.12	0.210		(Bq/L)
Strontium-90	0.26		A				0.26		(Bq/L)
Technetium-99	37.7	42.9	A		-12.1	30.03 - 55.77	0.884	L	(Bq/L)
Uranium-234/233	3.52	3.24	A		8.6	2.27 - 4.21	0.36		(Bq/L)
Uranium-238	3.44	3.33	A		3.3	2.33 - 4.33	0.35		(Bq/L)
Zinc-65	510	496	A		2.8	347.20 - 644.80	27.3		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

MART02 United States Enrichment Corporation
5600 Hobbs Road
Paducah KY 42001-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

MDPH01

MDPH-Radiation Control Program

MERL-Room 002

Sample ID: MAPEP-05-MaW13

	Jamaica Plain	MA	02130-3597							
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units	
Barium	NR	2.63				1.84 - 3.42				
Beryllium	NR	0.417				0.29 - 0.54				
Cadmium	NR	0.303				0.21 - 0.39				
Chromium	NR	1.67				1.17 - 2.17				
Copper	NR	1.92				1.34 - 2.50				
Lead	NR	1.21				0.85 - 1.57				
Mercury	NR	0.102				0.07 - 0.13				
Nickel	NR	0.968				0.68 - 1.26				
Selenium	NR	0.362				0.25 - 0.47				
Uranium-238	NR	0.268								
Vanadium	NR	3.67				2.57 - 4.77				
Zinc	NR	1.33				0.93 - 1.73				
Americium-241	NR	1.72				1.20 - 2.24				
Cesium-134	124	127	A		-2.4	88.90 - 165.10	1.58	L	(Bq/L)	
Cesium-137	369	332	A		11.1	232.40 - 431.60	8.32	L	(Bq/L)	
Cobalt-57	269	227	A		18.5	158.90 - 295.10	5.53	L	(Bq/L)	
Cobalt-60	287	251	A		14.3	175.70 - 326.30	4.12	L	(Bq/L)	
Hydrogen-3	292	280	A		4.3	196.00 - 364.00	11.2		(Bq/L)	
Iron-55	NR	75.9				53.13 - 98.67				
Manganese-54	378	331	A		14.2	231.70 - 430.30	7.35	L	(Bq/L)	
Plutonium-239/240	NR	2.4				1.68 - 3.12				
Technetium-99	NR	42.9				30.03 - 55.77				
Uranium-234/233	NR	3.24				2.27 - 4.21				
Uranium-238	NR	3.33				2.33 - 4.33				
Zinc-65	594	496	A		19.8	347.20 - 644.80	9.38	L	(Bq/L)	

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

NARL01

National Air and Radiation Environmental Laboratory

540 S. Morris Ave.

Sample ID: MAPEP-05-MaW13

	Montgomery	AL	36115-2601						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	0.011		N	1					(mg/L)
Barium	2.61	2.63	A		-0.8	1.84 - 3.42			(mg/L)
Beryllium	0.403	0.417	A		-3.4	0.29 - 0.54			(mg/L)
Cadmium	0.300	0.303	A		-1.0	0.21 - 0.39			(mg/L)
Calcium	41.6								(mg/L)
Chromium	1.78	1.67	A		6.6	1.17 - 2.17			(mg/L)
Copper	1.84	1.92	A		-4.2	1.34 - 2.50			(mg/L)
Lead	1.16	1.21	A		-4.1	0.85 - 1.57			(mg/L)
Magnesium	12.3								(mg/L)
Mercury	0.109	0.102	A		6.9	0.07 - 0.13			(mg/L)
Nickel	0.951	0.968	A		-1.8	0.68 - 1.26			(mg/L)
Potassium	1.01								(mg/L)
Selenium	0.353	0.362	A		-2.5	0.25 - 0.47			(mg/L)
Silver	0.434								(mg/L)
Sodium	4.51								(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.56	3.67	A		-3.0	2.57 - 4.77			(mg/L)
Zinc	1.27	1.33	A		-4.5	0.93 - 1.73			(mg/L)
Americium-241	1.72	1.72	A		0.0	1.20 - 2.24	0.08		(Bq/L)
Cesium-134	115	127	A		-9.4	88.90 - 165.10	3.3	L	(Bq/L)
Cesium-137	322	332	A		-3.0	232.40 - 431.60	9.2	L	(Bq/L)
Cobalt-57	221	227	A		-2.6	158.90 - 295.10	6.3	L	(Bq/L)
Cobalt-60	246	251	A		-2.0	175.70 - 326.30	7.1	L	(Bq/L)
Hydrogen-3	271.7	280	A		-3.0	196.00 - 364.00	4.5	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	325	331	A		-1.8	231.70 - 430.30	9.4	L	(Bq/L)
Plutonium-238	0.021	0.018	A	17			0.0087		(Bq/L)
Plutonium-239/240	2.5	2.4	A		4.2	1.68 - 3.12	0.10		(Bq/L)
Technetium-99	40	42.9	A		-6.8	30.03 - 55.77	0.66	L	(Bq/L)
Uranium-234/233	3.24	3.24	A		0.0	2.27 - 4.21	0.13		(Bq/L)
Uranium-235	0.174						0.018		(Bq/L)
Uranium-238	3.33	3.33	A		0.0	2.33 - 4.33	0.13		(Bq/L)
Zinc-65	516	496	A		4.0	347.20 - 644.80	15.0	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

NARL01 National Air and Radiation Environmental Laboratory
540 S. Morris Ave.
Montgomery AL 36115-2601

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

NESI01

BWXT Services-Nuclear Environmental Laboratory Servi

Sample ID: MAPEP-05-MaW13

Lynchburg Technology Center

Lynchburg

VA

24504-5447

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	0.000990		A						(mg/L)
Arsenic	0.00169		A						(mg/L)
Barium	2.73	2.63	A		3.8	1.84 - 3.42			(mg/L)
Beryllium	0.436	0.417	A		4.6	0.29 - 0.54			(mg/L)
Cadmium	0.296	0.303	A		-2.3	0.21 - 0.39			(mg/L)
Chromium	1.84	1.67	A		10.2	1.17 - 2.17			(mg/L)
Copper	NR	1.92				1.34 - 2.50			
Lead	1.23	1.21	A		1.7	0.85 - 1.57			(mg/L)
Mercury	NR	0.102				0.07 - 0.13			
Nickel	0.986	0.968	A		1.9	0.68 - 1.26			(mg/L)
Selenium	0.359	0.362	A		-0.8	0.25 - 0.47			(mg/L)
Silver	0.319								(mg/L)
Thallium	<.000650		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.77	3.67	A		2.7	2.57 - 4.77			(mg/L)
Zinc	1.29	1.33	A		-3.0	0.93 - 1.73			(mg/L)
Americium-241	1.74	1.72	A		1.2	1.20 - 2.24	0.0917		(Bq/L)
Cesium-134	107	127	A		-15.7	88.90 - 165.10	2.14	L	(Bq/L)
Cesium-137	313	332	A		-5.7	232.40 - 431.60	5.99	L	(Bq/L)
Cobalt-57	213	227	A		-6.2	158.90 - 295.10	3.37	L	(Bq/L)
Cobalt-60	253	251	A		0.8	175.70 - 326.30	4.87	L	(Bq/L)
Hydrogen-3	358	280	W		27.9	196.00 - 364.00	19.9		(Bq/L)
Iron-55	88.7	75.9	A		16.9	53.13 - 98.67	6.77		(Bq/L)
Manganese-54	299	331	A		-9.7	231.70 - 430.30	5.66	L	(Bq/L)
Nickel-63	1.94	9.0	N	4			0.306		(Bq/L)
Plutonium-238	0.0135	0.018	A				0.0022		(Bq/L)
Plutonium-239/240	2.37	2.4	A		-1.3	1.68 - 3.12	0.113		(Bq/L)
Strontium-90	0.0166		A				0.0179		(Bq/L)
Technetium-99	45.1	42.9	A		5.1	30.03 - 55.77	0.737	L	(Bq/L)
Uranium-234/233	3.11	3.24	A		-4.0	2.27 - 4.21	0.133		(Bq/L)
Uranium-238	3.19	3.33	A		-4.2	2.33 - 4.33	0.136		(Bq/L)
Zinc-65	481	496	A		-3.0	347.20 - 644.80	7.70	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

NESI01

BWXT Services-Nuclear Environmental Laboratory Servi
Lynchburg Technology Center
Lynchburg VA 24504-5447

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

NJDH01

New Jersey Dept. of Health & Senior Services, PHEL, E

Sample ID: MAPEP-05-MaW13

Market and Warren Streets

	Trenton	NJ	08625-0361		Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Analyte	Result	Ref Value	Flag	Flag Text					
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.66	1.72	A		-3.5	1.20 - 2.24	0.15		(Bq/L)
Cesium-134	112	127	A		-11.8	88.90 - 165.10	2	L	(Bq/L)
Cesium-137	308	332	A		-7.2	232.40 - 431.60	2	L	(Bq/L)
Cobalt-57	220	227	A		-3.1	158.90 - 295.10	2	L	(Bq/L)
Cobalt-60	239	251	A		-4.8	175.70 - 326.30	1	L	(Bq/L)
Hydrogen-3	285	280	A		1.8	196.00 - 364.00	3	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	318	331	A		-3.9	231.70 - 430.30	3	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Strontium-90	0.0304		A				0.0337		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.44	3.24	A		6.2	2.27 - 4.21	0.07	L	(Bq/L)
Uranium-238	3.49	3.33	A		4.8	2.33 - 4.33	0.05	L	(Bq/L)
Zinc-65	497	496	A		0.2	347.20 - 644.80	11	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

NJDH01 New Jersey Dept. of Health & Senior Services, PHEL, E
Market and Warren Streets
Trenton NJ 08625-0361

Sample ID: MAPEP-05-MaW13

Flags for Ni-63/Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 ± 1.1 Bq/L for Ni-63 and 0.018 ± 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
 - 2 - False Negative
 - 4 - Sensitivity Evaluation
 - 5 - Total Metal
 - 6 - Not Evaluated
 - 7 - DL > CLP Limit
 - 9 - Check QL
 - 10 - Check Isomer
 - 11 - False Positive Test, Value Not Reported
 - 14 - Solubility issue
 - 15 - Refractory
 - 16 - Reported zero uncertainty
 - 17 - NOT DETECTED, reported a statistical zero result
 - 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

NMLA01

Assaigai Analytical Laboratories

4301 Masthead NE

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Aluminum	<0.5								(mg/L)
Antimony	<0.01		A						(mg/L)
Arsenic	<0.005		A						(mg/L)
Barium	2.79	2.63	A		6.1	1.84 - 3.42			(mg/L)
Beryllium	0.403	0.417	A		-3.4	0.29 - 0.54			(mg/L)
Cadmium	0.306	0.303	A		1.0	0.21 - 0.39			(mg/L)
Calcium	39.4								(mg/L)
Chromium	1.76	1.67	A		5.4	1.17 - 2.17			(mg/L)
Cobalt	<0.05								(mg/L)
Copper	2.66	1.92	N		38.5	1.34 - 2.50			(mg/L)
Iron	<0.1								(mg/L)
Lead	1.14	1.21	A		-5.8	0.85 - 1.57			(mg/L)
Magnesium	12.0								(mg/L)
Manganese	<0.01								(mg/L)
Mercury	.161	0.102	N		57.8	0.07 - 0.13			(mg/L)
Molybdenum	<0.01								(mg/L)
Nickel	0.863	0.968	A		-10.8	0.68 - 1.26			(mg/L)
Potassium	1.11								(mg/L)
Selenium	0.356	0.362	A		-1.7	0.25 - 0.47			(mg/L)
Silver	0.114								(mg/L)
Sodium	4.00								(mg/L)
Thallium	<0.02		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.72	3.67	A		1.4	2.57 - 4.77			(mg/L)
Zinc	1.28	1.33	A		-3.8	0.93 - 1.73			(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	NR	496				347.20 - 644.80			

Mixed Analyte Performance Evaluation Program

Laboratory Results

NMLA01 Assaigai Analytical Laboratories
4301 Masthead NE
Albuquerque NM 87109

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

NRL99

National Radiation Laboratory

108 Victoria St

Christchurch

Christchu

8001

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.735	1.72	A		0.9	1.20 - 2.24	0.065		(Bq/L)
Cesium-134	111.42	127	A		-12.3	88.90 - 165.10	0.94	L	(Bq/L)
Cesium-137	312.8	332	A		-5.8	232.40 - 431.60	3.4	L	(Bq/L)
Cobalt-57	230.4	227	A		1.5	158.90 - 295.10	1.7	L	(Bq/L)
Cobalt-60	240.4	251	A		-4.2	175.70 - 326.30	5.4	L	(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	321.7	331	A		-2.8	231.70 - 430.30	4.7	L	(Bq/L)
Plutonium-238	0.0039	0.018	A	17			0.0033		(Bq/L)
Plutonium-239/240	2.51	2.4	A		4.6	1.68 - 3.12	0.092		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	6.04	3.24	N		86.4	2.27 - 4.21	0.64		(Bq/L)
Uranium-238	6.77	3.33	N		103.3	2.33 - 4.33	0.71		(Bq/L)
Zinc-65	508	496	A		2.4	347.20 - 644.80	14	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

NRLL99 National Radiation Laboratory
108 Victoria St
Christchurch Christchu 8001

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

NTSI01

Nuclear Technology Services, Inc.
635 Hembree Parkway

Sample ID: MAPEP-05-MaW13

	Roswell	GA	30076						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.480	1.72	A		-14.0	1.20 - 2.24	0.020	L	(Bq/L)
Cesium-134	113.500	127	A		-10.6	88.90 - 165.10	14.200		(Bq/L)
Cesium-137	323.200	332	A		-2.7	232.40 - 431.60	40.100		(Bq/L)
Cobalt-57	230.700	227	A		1.6	158.90 - 295.10	27.100		(Bq/L)
Cobalt-60	243.900	251	A		-2.8	175.70 - 326.30	29.800		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	330.700	331	A		-0.1	231.70 - 430.30	38.700		(Bq/L)
Plutonium-238	0.019	0.018	A				0.002		(Bq/L)
Plutonium-239/240	1.140	2.4	N		-52.5	1.68 - 3.12	0.022	L	(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.590	3.24	A		10.8	2.27 - 4.21	0.050	L	(Bq/L)
Uranium-235	0.230						0.010		(Bq/L)
Uranium-238	3.830	3.33	A		15.0	2.33 - 4.33	0.050	L	(Bq/L)
Zinc-65	499.100	496	A		0.6	347.20 - 644.80	55.800		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

NTSI01

Nuclear Technology Services, Inc.

635 Hembree Parkway

Roswell

GA

30076

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

OBGL01

O'Brien & Gere Laboratories, Inc.
PO Box 4873

Sample ID: MAPEP-05-MaW13

Syracuse		NY	13221-4873		<i>Bias</i> (%)	<i>Acceptance</i> <i>Range</i>	<i>Unc.</i> <i>Value</i>	<i>Unc.</i> <i>Flag</i>	<i>Units</i>
<i>Analyte</i>	<i>Result</i>	<i>Ref</i> <i>Value</i>	<i>Flag</i>	<i>Flag</i> <i>Text</i>					
Antimony	< .06		A						(mg/L)
Arsenic	< .005		A						(mg/L)
Barium	2.73	2.63	A		3.8	1.84 - 3.42			(mg/L)
Beryllium	.420	0.417	A		0.7	0.29 - 0.54			(mg/L)
Cadmium	.302	0.303	A		-0.3	0.21 - 0.39			(mg/L)
Chromium	1.89	1.67	A		13.2	1.17 - 2.17			(mg/L)
Copper	1.97	1.92	A		2.6	1.34 - 2.50			(mg/L)
Lead	1.23	1.21	A		1.7	0.85 - 1.57			(mg/L)
Mercury	.102	0.102	A		0.0	0.07 - 0.13			(mg/L)
Nickel	.991	0.968	A		2.4	0.68 - 1.26			(mg/L)
Selenium	.362	0.362	A		0.0	0.25 - 0.47			(mg/L)
Thallium	< .010		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.80	3.67	A		3.5	2.57 - 4.77			(mg/L)
Zinc	1.34	1.33	A		0.8	0.93 - 1.73			(mg/L)
Americium-241	1.7	1.72	A		-1.2	1.20 - 2.24	.522	H	(Bq/L)
Cesium-134	107	127	A		-15.7	88.90 - 165.10	9.76		(Bq/L)
Cesium-137	329	332	A		-0.9	232.40 - 431.60	58.6		(Bq/L)
Cobalt-57	240	227	A		5.7	158.90 - 295.10	30.2		(Bq/L)
Cobalt-60	253	251	A		0.8	175.70 - 326.30	30.3		(Bq/L)
Hydrogen-3	322	280	A		15.0	196.00 - 364.00	7.08	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	340	331	A		2.7	231.70 - 430.30	59.7		(Bq/L)
Plutonium-238	.0225	0.018	A	17			.0177		(Bq/L)
Plutonium-239/240	2.37	2.4	A		-1.3	1.68 - 3.12	.724	H	(Bq/L)
Technetium-99	21.7	42.9	N		-49.4	30.03 - 55.77	4.05		(Bq/L)
Uranium-234/233	3.23	3.24	A		-0.3	2.27 - 4.21	.990	H	(Bq/L)
Uranium-238	3.4	3.33	A		2.1	2.33 - 4.33	1.04	H	(Bq/L)
Zinc-65	543	496	A		9.5	347.20 - 644.80	93.1		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

OBGL01

O'Brien & Gere Laboratories, Inc.

PO Box 4873

Syracuse

NY

13221-4873

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ODHL01

Ohio Department of Health Laboratory
1571 Perry St

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	117	127	A		-7.9	88.90 - 165.10	1	L	(Bq/L)
Cesium-137	324	332	A		-2.4	232.40 - 431.60	1	L	(Bq/L)
Cobalt-57	228	227	A		0.4	158.90 - 295.10	1	L	(Bq/L)
Cobalt-60	248	251	A		-1.2	175.70 - 326.30	1	L	(Bq/L)
Hydrogen-3	308	280	A		10.0	196.00 - 364.00	16		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	329	331	A		-0.6	231.70 - 430.30	1	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Strontium-90	0.042		A				0.039		(Bq/L)
Techneium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	511	496	A		3.0	347.20 - 644.80	2	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

ODHL01

Ohio Department of Health Laboratory

1571 Perry St

Columbus

OH

43201

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

ORIS01

ORISE/ESSAP

PO Box 117

Sample ID: MAPEP-05-MaW13

	Oak Ridge	TN	37831-0117		Bias (%)	Acceptance Range	Unc. Value	Unc. Flag	Units
Analyte	Result	Ref Value	Flag	Flag Text					
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.68	1.72	A		-2.3	1.20 - 2.24	0.08		(Bq/L)
Cesium-134	130.8	127	A		3.0	88.90 - 165.10	3.6	L	(Bq/L)
Cesium-137	326.4	332	A		-1.7	232.40 - 431.60	8.2	L	(Bq/L)
Cobalt-57	235.3	227	A		3.7	158.90 - 295.10	4.5	L	(Bq/L)
Cobalt-60	256.4	251	A		2.2	175.70 - 326.30	5.0	L	(Bq/L)
Hydrogen-3	318.7	280	A		13.8	196.00 - 364.00	9.1	L	(Bq/L)
Iron-55	66	75.9	A		-13.0	53.13 - 98.67	13		(Bq/L)
Manganese-54	319.4	331	A		-3.5	231.70 - 430.30	6.9	L	(Bq/L)
Nickel-63	15.75	9.0	N	4			0.69		(Bq/L)
Plutonium-238	0.00	0.018	A	17			0.01		(Bq/L)
Plutonium-239/240	2.36	2.4	A		-1.7	1.68 - 3.12	0.11		(Bq/L)
Strontium-90	-0.01		A				0.13		(Bq/L)
Technetium-99	41.0	42.9	A		-4.4	30.03 - 55.77	1.8		(Bq/L)
Uranium-234/233	3.16	3.24	A		-2.5	2.27 - 4.21	0.13		(Bq/L)
Uranium-238	3.31	3.33	A		-0.6	2.33 - 4.33	0.14		(Bq/L)
Zinc-65	496	496	A		0.0	347.20 - 644.80	10	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

ORIS01 ORISE/ESSAP
 PO Box 117
 Oak Ridge TN 37831-0117

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

OTL101

Outreach Technologies, Inc.

311 N. Aspen

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	0.023		N	1					(mg/L)
Arsenic	<0.010		A						(mg/L)
Barium	2.73	2.63	A		3.8	1.84 - 3.42			(mg/L)
Beryllium	0.403	0.417	A		-3.4	0.29 - 0.54			(mg/L)
Cadmium	0.298	0.303	A		-1.6	0.21 - 0.39			(mg/L)
Chromium	1.86	1.67	A		11.4	1.17 - 2.17			(mg/L)
Copper	1.74	1.92	A		-9.4	1.34 - 2.50			(mg/L)
Lead	1.17	1.21	A		-3.3	0.85 - 1.57			(mg/L)
Mercury	0.0832	0.102	A		-18.4	0.07 - 0.13			(mg/L)
Nickel	0.938	0.968	A		-3.1	0.68 - 1.26			(mg/L)
Selenium	0.330	0.362	A		-8.8	0.25 - 0.47			(mg/L)
Thallium	<0.010		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.78	3.67	A		3.0	2.57 - 4.77			(mg/L)
Zinc	1.61	1.33	W		21.1	0.93 - 1.73			(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	109	127	A		-14.2	88.90 - 165.10	4.89		(Bq/L)
Cesium-137	321	332	A		-3.3	232.40 - 431.60	17.0		(Bq/L)
Cobalt-57	195	227	A		-14.1	158.90 - 295.10	21.2		(Bq/L)
Cobalt-60	256	251	A		2.0	175.70 - 326.30	8.96		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	313	331	A		-5.4	231.70 - 430.30	18.1		(Bq/L)
Plutonium-238	NR	0.018	N	18					
Plutonium-239/240	2.20	2.4	A		-8.3	1.68 - 3.12	0.240		(Bq/L)
Strontium-90	0.065		N	1			0.01		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.34	3.24	A		3.1	2.27 - 4.21	0.239		(Bq/L)
Uranium-238	3.41	3.33	A		2.4	2.33 - 4.33	0.233		(Bq/L)
Zinc-65	496	496	A		0.0	347.20 - 644.80	23.7		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

OTLIO1

Outreach Technologies, Inc.

311 N. Aspen

Broken Arrow

OK

74012-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

QUAN01

STL St. Louis

13715 Rider Trail North

Sample ID: MAPEP-05-MaW13

	Earth City	MO	63045-						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.010		A						(mg/L)
Arsenic	<0.010		A						(mg/L)
Barium	2.98	2.63	A		13.3	1.84 - 3.42			(mg/L)
Beryllium	0.453	0.417	A		8.6	0.29 - 0.54			(mg/L)
Cadmium	0.310	0.303	A		2.3	0.21 - 0.39			(mg/L)
Chromium	1.86	1.67	A		11.4	1.17 - 2.17			(mg/L)
Copper	1.98	1.92	A		3.1	1.34 - 2.50			(mg/L)
Lead	1.21	1.21	A		0.0	0.85 - 1.57			(mg/L)
Mercury	0.097	0.102	A		-4.9	0.07 - 0.13			(mg/L)
Nickel	0.969	0.968	A		0.1	0.68 - 1.26			(mg/L)
Selenium	0.359	0.362	A		-0.8	0.25 - 0.47			(mg/L)
Thallium	<0.01		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.78	3.67	A		3.0	2.57 - 4.77			(mg/L)
Zinc	1.3	1.33	A		-2.3	0.93 - 1.73			(mg/L)
Americium-241	1.41	1.72	A		-18.0	1.20 - 2.24	0.06		(Bq/L)
Cesium-134	119	127	A		-6.3	88.90 - 165.10	3	L	(Bq/L)
Cesium-137	338	332	A		1.8	232.40 - 431.60	9	L	(Bq/L)
Cobalt-57	239	227	A		5.3	158.90 - 295.10	6	L	(Bq/L)
Cobalt-60	254	251	A		1.2	175.70 - 326.30	7	L	(Bq/L)
Hydrogen-3	285	280	A		1.8	196.00 - 364.00	30		(Bq/L)
Iron-55	117	75.9	N		54.2	53.13 - 98.67	13		(Bq/L)
Manganese-54	343	331	A		3.6	231.70 - 430.30	9	L	(Bq/L)
Nickel-63	2.98	9.0	N	4			0.50		(Bq/L)
Plutonium-238	0.019	0.018	A				0.006		(Bq/L)
Plutonium-239/240	2.043	2.4	A		-14.9	1.68 - 3.12	0.065		(Bq/L)
Strontium-90	0.0448		A				0.0489		(Bq/L)
Technetium-99	43.4	42.9	A		1.2	30.03 - 55.77	2.2		(Bq/L)
Uranium-234/233	2.89	3.24	A		-10.8	2.27 - 4.21	0.08	L	(Bq/L)
Uranium-238	3.03	3.33	A		-9.0	2.33 - 4.33	0.09	L	(Bq/L)
Zinc-65	545	496	A		9.9	347.20 - 644.80	14	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

QUAN01 STL St. Louis
13715 Rider Trail North
Earth City MO 63045-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

QUAN02

STL Knoxville
5815 Middlebrook Pike

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	<0.010		A						(mg/L)
Barium	2.67	2.63	A		1.5	1.84 - 3.42			(mg/L)
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	0.319	0.303	A		5.3	0.21 - 0.39			(mg/L)
Chromium	1.93	1.67	A		15.6	1.17 - 2.17			(mg/L)
Copper	1.85	1.92	A		-3.6	1.34 - 2.50			(mg/L)
Lead	1.30	1.21	A		7.4	0.85 - 1.57			(mg/L)
Mercury	NR	0.102				0.07 - 0.13			
Nickel	1.05	0.968	A		8.5	0.68 - 1.26			(mg/L)
Selenium	0.375	0.362	A		3.6	0.25 - 0.47			(mg/L)
Silver	0.570								(mg/L)
Thallium	0.0177		N	1					(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.81	3.67	A		3.8	2.57 - 4.77			(mg/L)
Zinc	1.40	1.33	A		5.3	0.93 - 1.73			(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	NR	496				347.20 - 644.80			

Mixed Analyte Performance Evaluation Program

Laboratory Results

QUAN02 STL Knoxville
5815 Middlebrook Pike
Knoxville TN 37921-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

QUAN03

SEVERN TRENT LABORATORIES RICHLAND
2800 GEORGE WASHINGTON WAY

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.60	1.72	A		-7.0	1.20 - 2.24	0.22		(Bq/L)
Cesium-134	1054	127	N		729.9	88.90 - 165.10	139		(Bq/L)
Cesium-137	3060	332	N		821.7	232.40 - 431.60	365		(Bq/L)
Cobalt-57	2243	227	N		888.1	158.90 - 295.10	292		(Bq/L)
Cobalt-60	2446	251	N		874.5	175.70 - 326.30	324		(Bq/L)
Hydrogen-3	294	280	A		5.0	196.00 - 364.00	23.2		(Bq/L)
Iron-55	66.8	75.9	A		-12.0	53.13 - 98.67	6		(Bq/L)
Manganese-54	3030	331	N		815.4	231.70 - 430.30	407		(Bq/L)
Nickel-63	14.2	9.0	A				1.7		(Bq/L)
Plutonium-238	0.024	0.018	A	17			0.012		(Bq/L)
Plutonium-239/240	2.50	2.4	A		4.2	1.68 - 3.12	0.37		(Bq/L)
Strontium-90	0.0		W	16			0.0		(Bq/L)
Technetium-99	42.4	42.9	A		-1.2	30.03 - 55.77	3.1		(Bq/L)
Uranium-234/233	3.22	3.24	A		-0.6	2.27 - 4.21	0.51		(Bq/L)
Uranium-238	3.30	3.33	A		-0.9	2.33 - 4.33	0.52		(Bq/L)
Zinc-65	4801	496	N		867.9	347.20 - 644.80	606		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

QUAN03 SEVERN TRENT LABORATORIES RICHLAND
2800 GEORGE WASHINGTON WAY
RICHLAND WA 99354-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:
A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low
H = Uncertainty potentially too high
Q = Participant should evaluate reported value
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

RECC01

GEL Laboratories of Ohio, LLC

6954 Cornell Road

Sample ID: MAPEP-05-MaW13

	Cincinnati	OH	45242-3025						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<.002		A						(mg/L)
Arsenic	.0066		A						(mg/L)
Barium	2.47	2.63	A		-6.1	1.84 - 3.42			(mg/L)
Beryllium	.387	0.417	A		-7.2	0.29 - 0.54			(mg/L)
Cadmium	.290	0.303	A		-4.3	0.21 - 0.39			(mg/L)
Chromium	1.80	1.67	A		7.8	1.17 - 2.17			(mg/L)
Copper	1.77	1.92	A		-7.8	1.34 - 2.50			(mg/L)
Lead	1.05	1.21	A		-13.2	0.85 - 1.57			(mg/L)
Mercury	.103	0.102	A		1.0	0.07 - 0.13			(mg/L)
Nickel	.944	0.968	A		-2.5	0.68 - 1.26			(mg/L)
Selenium	.324	0.362	A		-10.5	0.25 - 0.47			(mg/L)
Thallium	.00173		A						(mg/L)
Uranium-Total	.250	0.27	A		-7.4	0.19 - 0.35	.00847		(mg/L)
Uranium-238	.269	0.268	A		0.4		.00697		(mg/L)
Vanadium	3.58	3.67	A		-2.5	2.57 - 4.77			(mg/L)
Zinc	1.24	1.33	A		-6.8	0.93 - 1.73			(mg/L)
Americium-241	1.75	1.72	A		1.7	1.20 - 2.24	.101		(Bq/L)
Cesium-134	117	127	A		-7.9	88.90 - 165.10	1.82	L	(Bq/L)
Cesium-137	333	332	A		0.3	232.40 - 431.60	10.1		(Bq/L)
Cobalt-57	232	227	A		2.2	158.90 - 295.10	2.93	L	(Bq/L)
Cobalt-60	245	251	A		-2.4	175.70 - 326.30	2.86	L	(Bq/L)
Hydrogen-3	256	280	A		-8.6	196.00 - 364.00	12.2		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	336	331	A		1.5	231.70 - 430.30	6.51	L	(Bq/L)
Plutonium-238	.00577	0.018	A	17			.00838		(Bq/L)
Plutonium-239/240	2.67	2.4	A		11.3	1.68 - 3.12	.181		(Bq/L)
Strontium-90	.187		N	1			.0461		(Bq/L)
Technetium-99	41.6	42.9	A		-3.0	30.03 - 55.77	.621	L	(Bq/L)
Uranium-234/233	3.06	3.24	A		-5.6	2.27 - 4.21	.255		(Bq/L)
Uranium-238	3.13	3.33	A		-6.0	2.33 - 4.33	.244		(Bq/L)
Zinc-65	504	496	A		1.6	347.20 - 644.80	7.83	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

RECC01 GEL Laboratories of Ohio, LLC
6954 Cornell Road
Cincinnati OH 45242-3025

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

RMCL99

Royal Scientific Society - Radiation Measurements Lab

Sample ID: MAPEP-05-MaW13

Ahmad Al-Tarawneh Str.

Al-Jubaiha Amman 11941

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	129.7	127	A		2.1	88.90 - 165.10	4.1		(Bq/L)
Cesium-137	324.8	332	A		-2.2	232.40 - 431.60	9.1	L	(Bq/L)
Cobalt-57	229.4	227	A		1.1	158.90 - 295.10	6.8	L	(Bq/L)
Cobalt-60	256.8	251	A		2.3	175.70 - 326.30	12.1		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	327.8	331	A		-1.0	231.70 - 430.30	9.0	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	512.2	496	A		3.3	347.20 - 644.80	14.1	L	(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

RPSC01

Radiation Protection Service

Sample ID: MAPEP-05-MaW13

Ontario Ministry of Labour

Weston

Ontario

M9P 3T1

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	124	127	A		-2.4	88.90 - 165.10	7		(Bq/L)
Cesium-137	320	332	A		-3.6	232.40 - 431.60	19		(Bq/L)
Cobalt-57	226	227	A		-0.4	158.90 - 295.10	14		(Bq/L)
Cobalt-60	257	251	A		2.4	175.70 - 326.30	15		(Bq/L)
Hydrogen-3	296	280	A		5.7	196.00 - 364.00	30		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	319	331	A		-3.6	231.70 - 430.30	19		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Strontium-90	-0.017		A				.012		(Bq/L)
Techneium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	502	496	A		1.2	347.20 - 644.80	30		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

RPSC01 Radiation Protection Service
 Ontario Ministry of Labour
 Weston Ontario M9P 3T1

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

RSAL01

RSA Laboratories, Inc.

PO Box 61

Sample ID: MAPEP-05-MaW13

	Hebron	CT	06248						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.98	1.72	A		15.1	1.20 - 2.24	1.56	H	(Bq/L)
Cesium-134	102.47	127	A		-19.3	88.90 - 165.10	2.54	L	(Bq/L)
Cesium-137	285.10	332	A		-14.1	232.40 - 431.60	6.85	L	(Bq/L)
Cobalt-57	207.35	227	A		-8.7	158.90 - 295.10	5.38	L	(Bq/L)
Cobalt-60	227.87	251	A		-9.2	175.70 - 326.30	5.57	L	(Bq/L)
Hydrogen-3	253.6	280	A		-9.4	196.00 - 364.00	6.46	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	304.82	331	A		-7.9	231.70 - 430.30	7.34	L	(Bq/L)
Plutonium-238	NR	0.018	N	18					
Plutonium-239/240	5.01	2.4	N		108.8	1.68 - 3.12	.85		(Bq/L)
Potassium-40	4.13						2.99		(Bq/L)
Strontium-90	-.005		A				.02		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.88	3.24	A		19.8	2.27 - 4.21	.68		(Bq/L)
Uranium-238	3.95	3.33	A		18.6	2.33 - 4.33	.68		(Bq/L)
Zinc-65	482.75	496	A		-2.7	347.20 - 644.80	11.73	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

RSAL01

RSA Laboratories, Inc.

PO Box 61

Hebron

CT

06248

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

RSIR99

Instituto de Radioprotecao e Dosimetria
Avenida Salvador Allende S/no.

Sample ID: MAPEP-05-MaW13

RJ Rio de Janeiro 22780-160

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	2.564	2.63	A		-2.5	1.84 - 3.42	0.051	L	(mg/L)
Beryllium	0.408	0.417	A		-2.2	0.29 - 0.54	0.011	L	(mg/L)
Cadmium	0.298	0.303	A		-1.6	0.21 - 0.39	0.005	L	(mg/L)
Chromium	1.834	1.67	A		9.8	1.17 - 2.17	0.064		(mg/L)
Copper	1.938	1.92	A		0.9	1.34 - 2.50	0.041	L	(mg/L)
Lead	1.145	1.21	A		-5.4	0.85 - 1.57	0.018	L	(mg/L)
Mercury	NR	0.102				0.07 - 0.13			
Nickel	0.941	0.968	A		-2.8	0.68 - 1.26	0.018	L	(mg/L)
Selenium	0.300	0.362	A		-17.1	0.25 - 0.47	0.013		(mg/L)
Uranium-Total	0.259	0.27	A		-4.1	0.19 - 0.35	0.005		(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.488	3.67	A		-5.0	2.57 - 4.77	0.084	L	(mg/L)
Zinc	1.419	1.33	A		6.7	0.93 - 1.73	0.035	L	(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	118.0	127	A		-7.1	88.90 - 165.10	4.2		(Bq/L)
Cesium-137	326.0	332	A		-1.8	232.40 - 431.60	11.0		(Bq/L)
Cobalt-57	210.2	227	A		-7.4	158.90 - 295.10	7.3		(Bq/L)
Cobalt-60	252.0	251	A		0.4	175.70 - 326.30	8.1		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	334.6	331	A		1.1	231.70 - 430.30	11.4		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	526.6	496	A		6.2	347.20 - 644.80	18.7		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

RSIR99

Instituto de Radioprotecao e Dosimetria

Avenida Salvador Allende S/no.

RJ

Rio de Ja 22780-160

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SAVA01

WSRC/SAVANNAH RIVER NATIONAL LABORATORY/

Sample ID: MAPEP-05-MaW13

773-A, room 125

AIKEN

SC

29802-

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.13		A						(mg/L)
Arsenic	<0.028		A				0.006		(mg/L)
Barium	2.8	2.63	A		6.5	1.84 - 3.42	0.28		(mg/L)
Beryllium	0.40	0.417	A		-4.1	0.29 - 0.54	0.04		(mg/L)
Cadmium	0.30	0.303	A		-1.0	0.21 - 0.39	0.03		(mg/L)
Chromium	1.9	1.67	A		13.8	1.17 - 2.17	0.19		(mg/L)
Copper	1.8	1.92	A		-6.3	1.34 - 2.50	0.18		(mg/L)
Lead	1.2	1.21	A		-0.8	0.85 - 1.57	0.12		(mg/L)
Mercury	0.0870	0.102	A		-14.7	0.07 - 0.13	0.017		(mg/L)
Nickel	1.2	0.968	W		24.0	0.68 - 1.26	0.12		(mg/L)
Selenium	0.328	0.362	A		-9.4	0.25 - 0.47	0.066	H	(mg/L)
Thallium	<0.85		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.8	3.67	A		3.5	2.57 - 4.77	0.4		(mg/L)
Zinc	1.4	1.33	A		5.3	0.93 - 1.73	0.1		(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	1.16E+02	127	A		-8.7	88.90 - 165.10	2.19E+00	L	(Bq/L)
Cesium-137	2.99E+02	332	A		-9.9	232.40 - 431.60	1.25E+01		(Bq/L)
Cobalt-57	2.10E+02	227	A		-7.5	158.90 - 295.10	1.00E+01		(Bq/L)
Cobalt-60	2.34E+02	251	A		-6.8	175.70 - 326.30	8.08E+00		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	3.07E+02	331	A		-7.3	231.70 - 430.30	8.17E+00	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	4.91E+02	496	A		-1.0	347.20 - 644.80	1.05E+01	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

SAVA01

WSRC/SAVANNAH RIVER NATIONAL LABORATORY/

773-A, room 125

AIKEN

SC

29802-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SCAL01

Sanford Cohen and Associates, Inc.

1000 Monticello Court

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.58	1.72	A		-8.1	1.20 - 2.24	0.185		(Bq/L)
Cesium-134	113	127	A		-11.0	88.90 - 165.10	7.63		(Bq/L)
Cesium-137	328	332	A		-1.2	232.40 - 431.60	22.6		(Bq/L)
Cobalt-57	230	227	A		1.3	158.90 - 295.10	13.6		(Bq/L)
Cobalt-60	245	251	A		-2.4	175.70 - 326.30	14.1		(Bq/L)
Hydrogen-3	258	280	A		-7.9	196.00 - 364.00	26.5		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	333	331	A		0.6	231.70 - 430.30	21.0		(Bq/L)
Nickel-63	6.97	9.0	A				1.21		(Bq/L)
Plutonium-238	0.018	0.018	A	17			0.007		(Bq/L)
Plutonium-239/240	2.44	2.4	A		1.7	1.68 - 3.12	0.281		(Bq/L)
Strontium-90	-0.138		A				0.080		(Bq/L)
Technetium-99	56.1	42.9	N		30.8	30.03 - 55.77	5.66		(Bq/L)
Uranium-234/233	3.34	3.24	A		3.1	2.27 - 4.21	0.380		(Bq/L)
Uranium-238	3.46	3.33	A		3.9	2.33 - 4.33	0.394		(Bq/L)
Zinc-65	521	496	A		5.0	347.20 - 644.80	30.5		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

SCAL01

Sanford Cohen and Associates, Inc.
1000 Monticello Court
Montgomery AL 36117-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SECRO1

SECRA 3005 Count Lab - ORNL

c/o Bechtell Jacobs Co., LLC

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	108.45	127	A		-14.6	88.90 - 165.10	1.50	L	(Bq/L)
Cesium-137	322.23	332	A		-2.9	232.40 - 431.60	7.44	L	(Bq/L)
Cobalt-57	234.39	227	A		3.3	158.90 - 295.10	4.10	L	(Bq/L)
Cobalt-60	246.06	251	A		-2.0	175.70 - 326.30	3.78	L	(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	331.92	331	A		0.3	231.70 - 430.30	7.16	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	525.79	496	A		6.0	347.20 - 644.80	9.75	L	(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SEML01

SRS Environmental Monitoring Laboratory

Sample ID: MAPEP-05-MaW13

Bldg 735-B

Aiken SC 29808

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.1		A				0.1		(mg/L)
Arsenic	0.0211		N	1			0.015		(mg/L)
Barium	2.56	2.63	A		-2.7	1.84 - 3.42	0.1		(mg/L)
Beryllium	0.399	0.417	A		-4.3	0.29 - 0.54	0.025		(mg/L)
Cadmium	0.287	0.303	A		-5.3	0.21 - 0.39	0.015		(mg/L)
Chromium	1.749	1.67	A		4.7	1.17 - 2.17	0.2		(mg/L)
Copper	1.803	1.92	A		-6.1	1.34 - 2.50	0.15		(mg/L)
Lead	1.14	1.21	A		-5.8	0.85 - 1.57	0.075		(mg/L)
Mercury	0.134	0.102	N		31.4	0.07 - 0.13	3	H	(mg/L)
Nickel	0.925	0.968	A		-4.4	0.68 - 1.26	0.05		(mg/L)
Selenium	0.302	0.362	A		-16.6	0.25 - 0.47	0.05		(mg/L)
Thallium	<0.06		A				0.06		(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.58	3.67	A		-2.5	2.57 - 4.77	0.15		(mg/L)
Zinc	1.24	1.33	A		-6.8	0.93 - 1.73	0.075		(mg/L)
Americium-241	1.80	1.72	A		4.7	1.20 - 2.24	0.14		(Bq/L)
Cesium-134	110.8	127	A		-12.8	88.90 - 165.10	5.5		(Bq/L)
Cesium-137	326	332	A		-1.8	232.40 - 431.60	16		(Bq/L)
Cobalt-57	227.4	227	A		0.2	158.90 - 295.10	11.4		(Bq/L)
Cobalt-60	252	251	A		0.4	175.70 - 326.30	12.6		(Bq/L)
Hydrogen-3	297	280	A		6.1	196.00 - 364.00	15		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	336	331	A		1.5	231.70 - 430.30	17		(Bq/L)
Plutonium-238	0.0036	0.018	A				.0009		(Bq/L)
Plutonium-239/240	2.70	2.4	A		12.5	1.68 - 3.12	0.2		(Bq/L)
Strontium-90	-5.6		A				2.8		(Bq/L)
Technetium-99	35.9	42.9	A		-16.3	30.03 - 55.77	2.7		(Bq/L)
Uranium-234/233	3.74	3.24	A		15.4	2.27 - 4.21	0.28		(Bq/L)
Uranium-238	3.91	3.33	A		17.4	2.33 - 4.33	0.29		(Bq/L)
Zinc-65	539	496	A		8.7	347.20 - 644.80	27		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

SEML01 SRS Environmental Monitoring Laboratory
Bldg 735-B

Aiken SC 29808

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SIHA01

Sandia National Lab - Industrial Hygiene Analytical Chemistry
PO Box 5800 MS0305

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	< 0.010		A						(mg/L)
Arsenic	< 0.010		A						(mg/L)
Barium	2.6	2.63	A		-1.1	1.84 - 3.42	0.20		(mg/L)
Beryllium	0.45	0.417	A		7.9	0.29 - 0.54	0.034		(mg/L)
Cadmium	0.31	0.303	A		2.3	0.21 - 0.39	0.023		(mg/L)
Chromium	1.8	1.67	A		7.8	1.17 - 2.17	0.14		(mg/L)
Copper	1.9	1.92	A		-1.0	1.34 - 2.50	0.14		(mg/L)
Lead	1.2	1.21	A		-0.8	0.85 - 1.57	0.090		(mg/L)
Mercury	0.10	0.102	A		-2.0	0.07 - 0.13	0.0075		(mg/L)
Nickel	0.95	0.968	A		-1.9	0.68 - 1.26	0.071		(mg/L)
Selenium	0.35	0.362	A		-3.3	0.25 - 0.47	0.026		(mg/L)
Thallium	< 0.010		A						(mg/L)
Uranium-Total	0.28	0.27	A		3.7	0.19 - 0.35	0.021		(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.7	3.67	A		0.8	2.57 - 4.77	0.28		(mg/L)
Zinc	1.4	1.33	A		5.3	0.93 - 1.73	0.11		(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	NR	496				347.20 - 644.80			

Mixed Analyte Performance Evaluation Program

Laboratory Results

SIHA01

Sandia National Lab - Industrial Hygiene Analytical Che
PO Box 5800 MS0305
Albuquerque NM 87185-0305

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.
W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SLAC01

SLAC

2575 Sand Hill Road

Sample ID: MAPEP-05-MaW13

Menlo Park

CA

94025

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	306	332	A		-7.8	232.40 - 431.60	22		(Bq/L)
Cobalt-57	193	227	A		-15.0	158.90 - 295.10	13		(Bq/L)
Cobalt-60	236	251	A		-6.0	175.70 - 326.30	15		(Bq/L)
Hydrogen-3	441	280	N		57.5	196.00 - 364.00	40		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	310	331	A		-6.3	231.70 - 430.30	25		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	481	496	A		-3.0	347.20 - 644.80	52		(Bq/L)

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SLDL01

Scientific Laboratory Division

Sample ID: MAPEP-05-MaW13

PO Box 4700

Albuquerque

NM

87196-4700

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.66	1.72	A		-3.5	1.20 - 2.24	0.11		(Bq/L)
Cesium-134	113.0	127	A		-11.0	88.90 - 165.10	13.0		(Bq/L)
Cesium-137	319.0	332	A		-3.9	232.40 - 431.60	35.0		(Bq/L)
Cobalt-57	235.0	227	A		3.5	158.90 - 295.10	26.0		(Bq/L)
Cobalt-60	245.0	251	A		-2.4	175.70 - 326.30	27.0		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	328.0	331	A		-0.9	231.70 - 430.30	36.0		(Bq/L)
Plutonium-238	0.014	0.018	A				0.004		(Bq/L)
Plutonium-239/240	2.29	2.4	A		-4.6	1.68 - 3.12	0.15		(Bq/L)
Techneium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.21	3.24	A		-0.9	2.27 - 4.21	0.19		(Bq/L)
Uranium-238	3.25	3.33	A		-2.4	2.33 - 4.33	0.19		(Bq/L)
Zinc-65	531.0	496	A		7.1	347.20 - 644.80	57.0		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

SLDL01 Scientific Laboratory Division
 PO Box 4700
 Albuquerque NM 87196-4700

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SNEC01

Saxton Nuclear Experimental Corp
165 Power Plant Road

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	107.65	127	A		-15.2	88.90 - 165.10	2.98	L	(Bq/L)
Cesium-137	321.90	332	A		-3.0	232.40 - 431.60	11.33		(Bq/L)
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	248.34	251	A		-1.1	175.70 - 326.30	5.64	L	(Bq/L)
Hydrogen-3	368.52	280	N		31.6	196.00 - 364.00	16.13		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	329.30	331	A		-0.5	231.70 - 430.30	14.71		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	NR	496				347.20 - 644.80			

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SOUT01

Southwest Research Institute

6220 Culebra Rd.

Sample ID: MAPEP-05-MaW13

	San Antonio	TX	78228-0510						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	2.5	2.63	A		-4.9	1.84 - 3.42	.130		(mg/L)
Beryllium	.377	0.417	A		-9.6	0.29 - 0.54	.0196		(mg/L)
Cadmium	.282	0.303	A		-6.9	0.21 - 0.39	.0146		(mg/L)
Chromium	1.68	1.67	A		0.6	1.17 - 2.17	.0874		(mg/L)
Copper	1.77	1.92	A		-7.8	1.34 - 2.50	.0921		(mg/L)
Lead	1.12	1.21	A		-7.4	0.85 - 1.57	.0581		(mg/L)
Mercury	.0937	0.102	A		-8.1	0.07 - 0.13	.00487		(mg/L)
Nickel	.854	0.968	A		-11.8	0.68 - 1.26	.0444		(mg/L)
Selenium	.309	0.362	A		-14.6	0.25 - 0.47	.0161		(mg/L)
Uranium-Total	.301	0.27	A		11.5	0.19 - 0.35	.0157		(mg/L)
Uranium-234	.0000159						.00000234		(mg/L)
Uranium-235	.00206	0.0019	A		8.4		.000107		(mg/L)
Uranium-238	.300	0.268	A		11.9		.0156		(mg/L)
Vanadium	3.50	3.67	A		-4.6	2.57 - 4.77	.182		(mg/L)
Zinc	1.21	1.33	A		-9.0	0.93 - 1.73	.0630		(mg/L)
Americium-241	1.622	1.72	A		-5.7	1.20 - 2.24	.1455		(Bq/L)
Cesium-134	122.8	127	A		-3.3	88.90 - 165.10	7.859		(Bq/L)
Cesium-137	315.7	332	A		-4.9	232.40 - 431.60	24.38		(Bq/L)
Cobalt-57	219.3	227	A		-3.4	158.90 - 295.10	19.46		(Bq/L)
Cobalt-60	247.5	251	A		-1.4	175.70 - 326.30	14.25		(Bq/L)
Hydrogen-3	238.7	280	A		-14.8	196.00 - 364.00	10.52		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	315.2	331	A		-4.8	231.70 - 430.30	25.83		(Bq/L)
Plutonium-238	.02261	0.018	A	17			.00997		(Bq/L)
Plutonium-239/240	2.485	2.4	A		3.5	1.68 - 3.12	.1519		(Bq/L)
Technetium-99	42.38	42.9	A		-1.2	30.03 - 55.77	1.775		(Bq/L)
Uranium-234/233	3.562	3.24	A		9.9	2.27 - 4.21	.7404	H	(Bq/L)
Uranium-238	3.485	3.33	A		4.7	2.33 - 4.33	.7267	H	(Bq/L)
Zinc-65	498.0	496	A		0.4	347.20 - 644.80	39.52		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

SOUT01 Southwest Research Institute
6220 Culebra Rd.
San Antonio TX 78228-0510

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SRPD01

Sandia National Laboratories, Radiation Protection Sam
PO Box 5800, MS0305

Sample ID: MAPEP-05-MaW13

Albuquerque		NM	87185-0305		Bias (%)	Acceptance Range	Unc. Value	Unc. Flag	Units
Analyte	Result	Ref Value	Flag	Flag Text					
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-Total	0.2823	0.27	A		4.6	0.19 - 0.35	0.0145		(mg/L)
Uranium-235	0.002	0.0019	A		5.3		0.000105		(mg/L)
Uranium-238	0.2803	0.268	A		4.6		0.0143		(mg/L)
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	110	127	A		-13.4	88.90 - 165.10	14		(Bq/L)
Cesium-137	310	332	A		-6.6	232.40 - 431.60	40		(Bq/L)
Cobalt-57	225	227	A		-0.9	158.90 - 295.10	30		(Bq/L)
Cobalt-60	240	251	A		-4.4	175.70 - 326.30	30		(Bq/L)
Hydrogen-3	262	280	A		-6.4	196.00 - 364.00	43		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	331	331	A		0.0	231.70 - 430.30	43		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	517	496	A		4.2	347.20 - 644.80	66		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

SRPD01 Sandia National Laboratories, Radiation Protection Sam
PO Box 5800, MS0305
Albuquerque NM 87185-0305

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

SSFL01

Santa Susana Field Laboratory

Top of Woolsey Canyon Road

Near Chatsworth

CA

91311

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	103.6	127	A		-18.4	88.90 - 165.10	10.16		(Bq/L)
Cesium-137	315.1	332	A		-5.1	232.40 - 431.60	31.36		(Bq/L)
Cobalt-57	224.8	227	A		-1.0	158.90 - 295.10	22.28		(Bq/L)
Cobalt-60	240.5	251	A		-4.2	175.70 - 326.30	23.7		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	322.4	331	A		-2.6	231.70 - 430.30	32.03		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	516.4	496	A		4.1	347.20 - 644.80	51.29		(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

TDHL01

Texas Department of State Health Services Laboratory
1100 W 49th Street

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	2.14	1.72	W		24.4	1.20 - 2.24	0.08		(Bq/L)
Cesium-134	123	127	A		-3.2	88.90 - 165.10	1	L	(Bq/L)
Cesium-137	338	332	A		1.8	232.40 - 431.60	5	L	(Bq/L)
Cobalt-57	240	227	A		5.7	158.90 - 295.10	3	L	(Bq/L)
Cobalt-60	260	251	A		3.6	175.70 - 326.30	2	L	(Bq/L)
Hydrogen-3	322	280	A		15.0	196.00 - 364.00	23		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	348	331	A		5.1	231.70 - 430.30	4	L	(Bq/L)
Plutonium-238	0.009	0.018	A				0.002		(Bq/L)
Plutonium-239/240	1.02	2.4	N		-57.5	1.68 - 3.12	0.03	L	(Bq/L)
Strontium-90	-0.019		A				0.062		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.33	3.24	A		2.8	2.27 - 4.21	0.07	L	(Bq/L)
Uranium-238	3.40	3.33	A		2.1	2.33 - 4.33	0.07	L	(Bq/L)
Zinc-65	566	496	A		14.1	347.20 - 644.80	6	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

TDHL01 Texas Department of State Health Services Laboratory **Sample ID:** MAPEP-05-MaW13
1100 W 49th Street
Austin TX 78756

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low
H = Uncertainty potentially too high
Q = Participant should evaluate reported value
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

TELE01

TELEDYNE BROWN ENGINEERING - ENVIRONMENT

2508 Quality Lane

Sample ID: MAPEP-05-MaW13

Knoxville		TN	37931-6819		Bias (%)	Acceptance Range	Unc. Value	Unc. Flag	Units
Analyte	Result	Ref Value	Flag	Flag Text					
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.66E+00	1.72	A		-3.5	1.20 - 2.24	1.77E-01		(Bq/L)
Cesium-134	1.08E+02	127	A		-15.0	88.90 - 165.10	3.64E+00		(Bq/L)
Cesium-137	3.05E+02	332	A		-8.1	232.40 - 431.60	7.07E+00	L	(Bq/L)
Cobalt-57	2.15E+02	227	A		-5.3	158.90 - 295.10	4.09E+00	L	(Bq/L)
Cobalt-60	2.41E+02	251	A		-4.0	175.70 - 326.30	4.65E+00	L	(Bq/L)
Hydrogen-3	2.83E+02	280	A		1.1	196.00 - 364.00	1.15E+01		(Bq/L)
Iron-55	6.10E+01	75.9	A		-19.6	53.13 - 98.67	1.17E+01		(Bq/L)
Manganese-54	3.14E+02	331	A		-5.1	231.70 - 430.30	7.72E+00	L	(Bq/L)
Nickel-63	1.25E+01	9.0	A				3.40E+00		(Bq/L)
Plutonium-238	4.52E-02	0.018	A	17			2.71E-02		(Bq/L)
Plutonium-239/240	2.50E+00	2.4	A		4.2	1.68 - 3.12	2.91E-01		(Bq/L)
Strontium-90	9.30E-02		A				9.08E-02		(Bq/L)
Technetium-99	3.94E+01	42.9	A		-8.2	30.03 - 55.77	1.24E+00		(Bq/L)
Uranium-234/233	3.46E+00	3.24	A		6.8	2.27 - 4.21	3.24E-01		(Bq/L)
Uranium-238	3.49E+00	3.33	A		4.8	2.33 - 4.33	3.27E-01		(Bq/L)
Zinc-65	5.09E+02	496	A		2.6	347.20 - 644.80	1.46E+01	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

TELE01 TELEDYNE BROWN ENGINEERING - ENVIRONMENT
 2508 Quality Lane
 Knoxville TN 37931-6819

Sample ID: MAPEP-05-MaW13

Flags for Ni-63/Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 ± 1.1 Bq/L for Ni-63 and 0.018 ± 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
 - 2 - False Negative
 - 4 - Sensitivity Evaluation
 - 5 - Total Metal
 - 6 - Not Evaluated
 - 7 - DL > CLP Limit
 - 9 - Check QL
 - 10 - Check Isomer
 - 11 - False Positive Test, Value Not Reported
 - 14 - Solubility issue
 - 15 - Refractory
 - 16 - Reported zero uncertainty
 - 17 - NOT DETECTED, reported a statistical zero result
 - 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

TELE02

Environmental, Inc., Midwest Lab
700 Landwehr Road

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	IL	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63					1.84 - 3.42			
Beryllium	NR	0.417					0.29 - 0.54			
Cadmium	NR	0.303					0.21 - 0.39			
Chromium	NR	1.67					1.17 - 2.17			
Copper	NR	1.92					1.34 - 2.50			
Lead	NR	1.21					0.85 - 1.57			
Mercury	NR	0.102					0.07 - 0.13			
Nickel	NR	0.968					0.68 - 1.26			
Selenium	NR	0.362					0.25 - 0.47			
Uranium-238	NR	0.268								
Vanadium	NR	3.67					2.57 - 4.77			
Zinc	NR	1.33					0.93 - 1.73			
Americium-241	1.62	1.72	A			-5.8	1.20 - 2.24	0.12		(Bq/L)
Cesium-134	115.5	127	A			-9.1	88.90 - 165.10	1.8	L	(Bq/L)
Cesium-137	328.5	332	A			-1.1	232.40 - 431.60	1.7	L	(Bq/L)
Cobalt-57	239.4	227	A			5.5	158.90 - 295.10	1.2	L	(Bq/L)
Cobalt-60	248.7	251	A			-0.9	175.70 - 326.30	1.0	L	(Bq/L)
Hydrogen-3	304.0	280	A			8.6	196.00 - 364.00	9.7		(Bq/L)
Iron-55	64.9	75.9	A			-14.5	53.13 - 98.67	7.0		(Bq/L)
Manganese-54	334.8	331	A			1.1	231.70 - 430.30	1.9	L	(Bq/L)
Nickel-63	7.1	9.0	A					1.6		(Bq/L)
Plutonium-238	0.01	0.018	A	17				0.02		(Bq/L)
Plutonium-239/240	2.50	2.4	A			4.2	1.68 - 3.12	0.14		(Bq/L)
Strontium-90	0.7		A					0.8		(Bq/L)
Technetium-99	43.2	42.9	A			0.7	30.03 - 55.77	1.4		(Bq/L)
Uranium-234/233	3.31	3.24	A			2.2	2.27 - 4.21	0.2		(Bq/L)
Uranium-238	3.38	3.33	A			1.5	2.33 - 4.33	0.2		(Bq/L)
Zinc-65	538.4	496	A			8.5	347.20 - 644.80	3.8	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

TELE02

Environmental, Inc., Midwest Lab
700 Landwehr Road
Northbrook IL 60062-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

TMAE01

Eberline Services, Inc.

Sample ID: MAPEP-05-MaW13

7021 Pan American Freeway N.E.

Albuquerque

NM

87109-

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.55	1.72	A		-9.9	1.20 - 2.24	0.353	H	(Bq/L)
Cesium-134	109	127	A		-14.2	88.90 - 165.10	14.9		(Bq/L)
Cesium-137	313	332	A		-5.7	232.40 - 431.60	44.7		(Bq/L)
Cobalt-57	227	227	A		0.0	158.90 - 295.10	32.4		(Bq/L)
Cobalt-60	230	251	A		-8.4	175.70 - 326.30	31.1		(Bq/L)
Hydrogen-3	279	280	A		-0.4	196.00 - 364.00	25.6		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	328	331	A		-0.9	231.70 - 430.30	46.5		(Bq/L)
Plutonium-238	0.005	0.018	A	17			0.019		(Bq/L)
Plutonium-239/240	2.33	2.4	A		-2.9	1.68 - 3.12	0.632	H	(Bq/L)
Strontium-90	0.368		A				0.145		(Bq/L)
Technetium-99	39.4	42.9	A		-8.2	30.03 - 55.77	4.23		(Bq/L)
Uranium-234/233	3.23	3.24	A		-0.3	2.27 - 4.21	2.46	H	(Bq/L)
Uranium-238	3.10	3.33	A		-6.9	2.33 - 4.33	2.37	H	(Bq/L)
Zinc-65	487	496	A		-1.8	347.20 - 644.80	70.0		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

TMAE01 Eberline Services, Inc.
 7021 Pan American Freeway N.E.
 Albuquerque NM 87109-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

TMAO01

EBERLINE SERVICES OAK RIDGE LABORATORY
601 SCARBORO RD

Sample ID: MAPEP-05-MaW13

OAK RIDGE		TN	37830-		Bias (%)	Acceptance Range	Unc. Value	Unc. Flag	Units
Analyte	Result	Ref Value	Flag	Flag Text					
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.77	1.72	A		2.9	1.20 - 2.24	0.16		(Bq/L)
Cesium-134	112.0	127	A		-11.8	88.90 - 165.10	3.14	L	(Bq/L)
Cesium-137	318.8	332	A		-4.0	232.40 - 431.60	17.29		(Bq/L)
Cobalt-57	223.7	227	A		-1.5	158.90 - 295.10	8.55		(Bq/L)
Cobalt-60	245.3	251	A		-2.3	175.70 - 326.30	7.63		(Bq/L)
Hydrogen-3	288.6	280	A		3.1	196.00 - 364.00	6.7	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	323.2	331	A		-2.4	231.70 - 430.30	17.14		(Bq/L)
Nickel-63	11.2	9.0	A				0.77		(Bq/L)
Plutonium-238	0.024	0.018	A	17			0.0177		(Bq/L)
Plutonium-239/240	2.7	2.4	A		12.5	1.68 - 3.12	0.21		(Bq/L)
Strontium-90	0.17		N	1			0.047		(Bq/L)
Technetium-99	39.9	42.9	A		-7.0	30.03 - 55.77	0.31	L	(Bq/L)
Uranium-234/233	3.48	3.24	A		7.4	2.27 - 4.21	0.27		(Bq/L)
Uranium-238	3.72	3.33	A		11.7	2.33 - 4.33	0.28		(Bq/L)
Zinc-65	511.1	496	A		3.0	347.20 - 644.80	36.8		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

TMAO01 EBERLINE SERVICES OAK RIDGE LABORATORY
601 SCARBORO RD
OAK RIDGE TN 37830-

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

TMAR01

Eberline Services
2030 Wright Ave

Sample ID: MAPEP-05-MaW13

	Richmond	CA	94804-0040						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.73	1.72	A		0.6	1.20 - 2.24	0.087		(Bq/L)
Cesium-134	128.5	127	A		1.2	88.90 - 165.10	11.2		(Bq/L)
Cesium-137	330.8	332	A		-0.4	232.40 - 431.60	25.0		(Bq/L)
Cobalt-57	230.1	227	A		1.4	158.90 - 295.10	17.3		(Bq/L)
Cobalt-60	258.7	251	A		3.1	175.70 - 326.30	19.6		(Bq/L)
Hydrogen-3	294.5	280	A		5.2	196.00 - 364.00	17.4		(Bq/L)
Iron-55	85.9	75.9	A		13.2	53.13 - 98.67	2.98		(Bq/L)
Manganese-54	338.5	331	A		2.3	231.70 - 430.30	25.6		(Bq/L)
Nickel-63	1.28	9.0	N	4			0.322		(Bq/L)
Plutonium-238	0.014	0.018	A				0.003		(Bq/L)
Plutonium-239/240	2.35	2.4	A		-2.1	1.68 - 3.12	0.072		(Bq/L)
Strontium-90	-0.004		A				-0.006		(Bq/L)
Technetium-99	42.3	42.9	A		-1.4	30.03 - 55.77	2.21		(Bq/L)
Uranium-234/233	3.25	3.24	A		0.3	2.27 - 4.21	0.102		(Bq/L)
Uranium-235	0.170						0.010		(Bq/L)
Uranium-238	3.30	3.33	A		-0.9	2.33 - 4.33	0.104		(Bq/L)
Zinc-65	538.8	496	A		8.6	347.20 - 644.80	41.0		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

TMAR01 Eberline Services
 2030 Wright Ave
 Richmond CA 94804-0040

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

TNUT01

FUSRAP

8945 LATTY AVE

Sample ID: MAPEP-05-MaW13

BERKELEY	MO	63134-							
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	112.775	127	A		-11.2	88.90 - 165.10	0.909	L	(Bq/L)
Cesium-137	337.650	332	A		1.7	232.40 - 431.60	3.823	L	(Bq/L)
Cobalt-57	241.375	227	A		6.3	158.90 - 295.10	2.067	L	(Bq/L)
Cobalt-60	259.250	251	A		3.3	175.70 - 326.30	1.861	L	(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	349.900	331	A		5.7	231.70 - 430.30	3.719	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.288	3.24	A		1.5	2.27 - 4.21	0.333		(Bq/L)
Uranium-238	3.318	3.33	A		-0.4	2.33 - 4.33	0.335		(Bq/L)
Zinc-65	564.000	496	A		13.7	347.20 - 644.80	5.176	L	(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

WEST01

Lionville Laboratory Incorporated
208 Welsh Pool Road

Sample ID: MAPEP-05-MaW13

	Lionville	PA	19341-1313						
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	0.003		A						(mg/L)
Barium	2.68	2.63	A		1.9	1.84 - 3.42			(mg/L)
Beryllium	0.408	0.417	A		-2.2	0.29 - 0.54			(mg/L)
Cadmium	0.297	0.303	A		-2.0	0.21 - 0.39			(mg/L)
Chromium	1.83	1.67	A		9.6	1.17 - 2.17			(mg/L)
Copper	1.95	1.92	A		1.6	1.34 - 2.50			(mg/L)
Lead	1.2	1.21	A		-0.8	0.85 - 1.57			(mg/L)
Mercury	0.103	0.102	A		1.0	0.07 - 0.13			(mg/L)
Nickel	0.963	0.968	A		-0.5	0.68 - 1.26			(mg/L)
Selenium	0.343	0.362	A		-5.2	0.25 - 0.47			(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.65	3.67	A		-0.5	2.57 - 4.77			(mg/L)
Zinc	1.3	1.33	A		-2.3	0.93 - 1.73			(mg/L)
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	NR	496				347.20 - 644.80			

Mixed Analyte Performance Evaluation Program

Laboratory Results

WEST01 Lionville Laboratory Incorporated
 208 Welsh Pool Road
 Lionville PA 19341-1313

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

WEST03

Waste Sampling and Characterization Facility
PO Box 1000, S3-30

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	0.0007		A				0.00008		(mg/L)
Arsenic	0.001		A				0.0004		(mg/L)
Barium	2.60	2.63	A		-1.1	1.84 - 3.42	0.11		(mg/L)
Beryllium	0.42	0.417	A		0.7	0.29 - 0.54	0.03		(mg/L)
Cadmium	0.3	0.303	A		-1.0	0.21 - 0.39	0.02		(mg/L)
Chromium	1.74	1.67	A		4.2	1.17 - 2.17	0.08		(mg/L)
Copper	1.84	1.92	A		-4.2	1.34 - 2.50	0.10		(mg/L)
Lead	1.19	1.21	A		-1.7	0.85 - 1.57	0.05		(mg/L)
Mercury	0.094	0.102	A		-7.8	0.07 - 0.13	0.011		(mg/L)
Nickel	0.94	0.968	A		-2.9	0.68 - 1.26	0.04		(mg/L)
Selenium	0.35	0.362	A		-3.3	0.25 - 0.47	0.04		(mg/L)
Uranium-Total	0.28	0.27	A		3.7	0.19 - 0.35	0.01		(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.55	3.67	A		-3.3	2.57 - 4.77	0.16		(mg/L)
Zinc	1.32	1.33	A		-0.8	0.93 - 1.73	0.12		(mg/L)
Americium-241	1.67	1.72	A		-2.9	1.20 - 2.24	0.41	H	(Bq/L)
Cesium-134	115	127	A		-9.4	88.90 - 165.10	8.4		(Bq/L)
Cesium-137	331	332	A		-0.3	232.40 - 431.60	51.2		(Bq/L)
Cobalt-57	232	227	A		2.2	158.90 - 295.10	22.1		(Bq/L)
Cobalt-60	258	251	A		2.8	175.70 - 326.30	24.1		(Bq/L)
Hydrogen-3	275	280	A		-1.8	196.00 - 364.00	55.9	H	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	340	331	A		2.7	231.70 - 430.30	50.8		(Bq/L)
Plutonium-238	0.022	0.018	A	17			0.021		(Bq/L)
Plutonium-239/240	2.46	2.4	A		2.5	1.68 - 3.12	0.64	H	(Bq/L)
Strontium-90	-0.083		A				0.18		(Bq/L)
Technetium-99	14.1	42.9	N		-67.1	30.03 - 55.77	2.8		(Bq/L)
Uranium-234/233	3.01	3.24	A		-7.1	2.27 - 4.21	0.66	H	(Bq/L)
Uranium-238	3.11	3.33	A		-6.6	2.33 - 4.33	0.68	H	(Bq/L)
Zinc-65	557	496	A		12.3	347.20 - 644.80	76.9		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

WEST03 Waste Sampling and Characterization Facility
 PO Box 1000, S3-30
 Richland WA 99352

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

WEST04

PACE ANALYTICAL SERVICES WALTZ MILL SITE
P.O. BOX 158

Sample ID: MAPEP-05-MaW13

	MADISON	PA	15663-0158		Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Analyte	Result	Ref Value	Flag	Flag Text					
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.719	1.72	A		-0.1	1.20 - 2.24	0.287		(Bq/L)
Cesium-134	110.5	127	A		-13.0	88.90 - 165.10	3.21	L	(Bq/L)
Cesium-137	322.6	332	A		-2.8	232.40 - 431.60	17.9		(Bq/L)
Cobalt-57	220.7	227	A		-2.8	158.90 - 295.10	9.47		(Bq/L)
Cobalt-60	248.8	251	A		-0.9	175.70 - 326.30	8.33		(Bq/L)
Hydrogen-3	292.2	280	A		4.4	196.00 - 364.00	42.6		(Bq/L)
Iron-55	22.0	75.9	N		-71.0	53.13 - 98.67	5.54	H	(Bq/L)
Manganese-54	129.3	331	N		-60.9	231.70 - 430.30	18.0		(Bq/L)
Nickel-63	1.530	9.0	N	4			0.221		(Bq/L)
Plutonium-238	0.049	0.018	A	17			0.024		(Bq/L)
Plutonium-239/240	2.691	2.4	A		12.1	1.68 - 3.12	0.435		(Bq/L)
Strontium-90	0.077		A				0.053		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.035	3.24	A		-6.3	2.27 - 4.21	0.475		(Bq/L)
Uranium-238	3.215	3.33	A		-3.5	2.33 - 4.33	0.504		(Bq/L)
Zinc-65	529.7	496	A		6.8	347.20 - 644.80	25.8		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

WEST04 PACE ANALYTICAL SERVICES WALTZ MILL SITE
P.O. BOX 158
MADISON PA 15663-0158

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

WIPH01

WI, DPH, Radiation Protection Section
PO Box 2659

Sample ID: MAPEP-05-MaW13

	Madison	WI	53701-2659		Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Analyte	Result	Ref Value	Flag	Flag Text					
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	114	127	A		-10.2	88.90 - 165.10	3	L	(Bq/L)
Cesium-137	316	332	A		-4.8	232.40 - 431.60	11		(Bq/L)
Cobalt-57	222	227	A		-2.2	158.90 - 295.10	7		(Bq/L)
Cobalt-60	235	251	A		-6.4	175.70 - 326.30	5	L	(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	322	331	A		-2.7	231.70 - 430.30	9	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	511	496	A		3.0	347.20 - 644.80	15	L	(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

WIPP01

WIPP Laboratories
1400 University Drive

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	1.621	1.72	A		-5.8	1.20 - 2.24	0.063		(Bq/L)
Cesium-134	119.8	127	A		-5.7	88.90 - 165.10	9.8		(Bq/L)
Cesium-137	318.0	332	A		-4.2	232.40 - 431.60	25.4		(Bq/L)
Cobalt-57	229.6	227	A		1.1	158.90 - 295.10	17.7		(Bq/L)
Cobalt-60	266.4	251	A		6.1	175.70 - 326.30	19.7		(Bq/L)
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	340.0	331	A		2.7	231.70 - 430.30	25.2		(Bq/L)
Plutonium-238	0.0162	0.018	A	17			0.0055		(Bq/L)
Plutonium-239/240	2.489	2.4	A		3.7	1.68 - 3.12	0.0845		(Bq/L)
Strontium-90	0.0128		A				0.0208		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	3.409	3.24	A		5.2	2.27 - 4.21	0.1026		(Bq/L)
Uranium-238	3.567	3.33	A		7.1	2.33 - 4.33	0.1059	L	(Bq/L)
Zinc-65	544.2	496	A		9.7	347.20 - 644.80	37.7		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

WIPP01 WIPP Laboratories
 1400 University Drive
 Carlsbad NM 88220

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

WSHL01

Wisconsin State Laboratory of Hygiene
2601 Agriculture Drive

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	115.1	127	A		-9.4	88.90 - 165.10	2.6	L	(Bq/L)
Cesium-137	313.2	332	A		-5.7	232.40 - 431.60	6.6	L	(Bq/L)
Cobalt-57	219.2	227	A		-3.4	158.90 - 295.10	6.2	L	(Bq/L)
Cobalt-60	244.9	251	A		-2.4	175.70 - 326.30	3.8	L	(Bq/L)
Hydrogen-3	293.4	280	A		4.8	196.00 - 364.00	10.0		(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	325.0	331	A		-1.8	231.70 - 430.30	6.5	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	526.1	496	A		6.1	347.20 - 644.80	11.1	L	(Bq/L)

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

- A = Result acceptable Bias <= 20%
- W = Result acceptable with warning 20% < Bias <= 30%
- N = Result not acceptable Bias > 30%
- L = Uncertainty potentially too low
- H = Uncertainty potentially too high
- Q = Participant should evaluate reported value
- QL = Quantitation Limit
- RW = Report Warning
- NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

WVDP01

WVDP Environmental Laboratory
10282 Rock Springs Road

Sample ID: MAPEP-05-MaW13

West Valley	NY	14171							
Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	110	127	A		-13.4	88.90 - 165.10	0.738	L	(Bq/L)
Cesium-137	319	332	A		-3.9	232.40 - 431.60	1.11	L	(Bq/L)
Cobalt-57	221	227	A		-2.6	158.90 - 295.10	0.560	L	(Bq/L)
Cobalt-60	241	251	A		-4.0	175.70 - 326.30	1.08	L	(Bq/L)
Hydrogen-3	280	280	A		0.0	196.00 - 364.00	5.10	L	(Bq/L)
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	326	331	A		-1.5	231.70 - 430.30	1.23	L	(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Strontium-90	0.132		A				0.0474		(Bq/L)
Techneium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	515	496	A		3.8	347.20 - 644.80	2.57	L	(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

WVDP01 WVDP Environmental Laboratory
10282 Rock Springs Road
West Valley NY 14171

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low
H = Uncertainty potentially too high
Q = Participant should evaluate reported value
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

WVNS01

West Valley Nuclear Services
10282 Rock Springs Road

Sample ID: MAPEP-05-MaW13

West Valley

NY

14171-9799

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Antimony	<0.4		A						(mg/L)
Arsenic	<0.25		A						(mg/L)
Barium	2.68	2.63	A		1.9	1.84 - 3.42			(mg/L)
Beryllium	0.352	0.417	A		-15.6	0.29 - 0.54			(mg/L)
Cadmium	0.297	0.303	A		-2.0	0.21 - 0.39			(mg/L)
Chromium	1.74	1.67	A		4.2	1.17 - 2.17			(mg/L)
Copper	1.85	1.92	A		-3.6	1.34 - 2.50			(mg/L)
Lead	1.23	1.21	A		1.7	0.85 - 1.57			(mg/L)
Mercury	0.11	0.102	A		7.8	0.07 - 0.13			(mg/L)
Nickel	0.836	0.968	A		-13.6	0.68 - 1.26			(mg/L)
Selenium	0.372	0.362	A		2.8	0.25 - 0.47			(mg/L)
Thallium	<0.1		A						(mg/L)
Uranium-238	NR	0.268							
Vanadium	3.63	3.67	A		-1.1	2.57 - 4.77			(mg/L)
Zinc	1.28	1.33	A		-3.8	0.93 - 1.73			(mg/L)
Americium-241	2.26	1.72	N		31.4	1.20 - 2.24	1.10	H	(Bq/L)
Cesium-134	131	127	A		3.2	88.90 - 165.10	4.66		(Bq/L)
Cesium-137	352	332	A		6.0	232.40 - 431.60	11.0		(Bq/L)
Cobalt-57	245	227	A		7.9	158.90 - 295.10	5.85	L	(Bq/L)
Cobalt-60	259	251	A		3.2	175.70 - 326.30	7.70	L	(Bq/L)
Hydrogen-3	629	280	N		124.6	196.00 - 364.00	1510	H	(Bq/L)
Iron-55	142	75.9	N		87.1	53.13 - 98.67	26.0		(Bq/L)
Manganese-54	351	331	A		6.0	231.70 - 430.30	10.6		(Bq/L)
Nickel-63	-0.50	9.0	W	2			-0.99		(Bq/L)
Plutonium-238	NR	0.018	N	18					
Plutonium-239/240	2.45	2.4	A		2.1	1.68 - 3.12	0.16		(Bq/L)
Strontium-90	-3.81		A				9.62		(Bq/L)
Technetium-99	18.2	42.9	N		-57.6	30.03 - 55.77	0.51	L	(Bq/L)
Uranium-234/233	2.52	3.24	W		-22.2	2.27 - 4.21	0.20		(Bq/L)
Uranium-238	2.74	3.33	A		-17.7	2.33 - 4.33	0.20		(Bq/L)
Zinc-65	540	496	A		8.9	347.20 - 644.80	16.9		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

WVNS01 West Valley Nuclear Services
 10282 Rock Springs Road
 West Valley NY 14171-9799

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

YAEC01

Framatome ANP Environmental Laboratory
29 Research Drive

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	118.4	127	A		-6.8	88.90 - 165.10	5.9		(Bq/L)
Cesium-137	299.7	332	A		-9.7	232.40 - 431.60	15		(Bq/L)
Cobalt-57	211.7	227	A		-6.7	158.90 - 295.10	11		(Bq/L)
Cobalt-60	235.6	251	A		-6.1	175.70 - 326.30	12		(Bq/L)
Hydrogen-3	303.3	280	A		8.3	196.00 - 364.00	17		(Bq/L)
Iron-55	82.2	75.9	A		8.3	53.13 - 98.67	7.25		(Bq/L)
Manganese-54	305.9	331	A		-7.6	231.70 - 430.30	15		(Bq/L)
Nickel-63	1.45	9.0	W	2			1.4		(Bq/L)
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Strontium-90	0.216		A				0.092		(Bq/L)
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	488.7	496	A		-1.5	347.20 - 644.80	25		(Bq/L)

Mixed Analyte Performance Evaluation Program

Laboratory Results

YAEC01 Framatome ANP Environmental Laboratory
29 Research Drive
Westboro MA 01581

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags: A = Result acceptable Bias <= 20%
 W = Result acceptable with warning 20% < Bias <= 30%
 N = Result not acceptable Bias > 30%
 L = Uncertainty potentially too low
 H = Uncertainty potentially too high
 Q = Participant should evaluate reported value
 QL = Quantitation Limit
 RW = Report Warning
 NR = Not Reported

Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

YPGA01

US Army Yuma Proving Ground / Material Analysis Lab
301 C. Street

Sample ID: MAPEP-05-MaW13

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Barium	NR	2.63				1.84 - 3.42			
Beryllium	NR	0.417				0.29 - 0.54			
Cadmium	NR	0.303				0.21 - 0.39			
Chromium	NR	1.67				1.17 - 2.17			
Copper	NR	1.92				1.34 - 2.50			
Lead	NR	1.21				0.85 - 1.57			
Mercury	NR	0.102				0.07 - 0.13			
Nickel	NR	0.968				0.68 - 1.26			
Selenium	NR	0.362				0.25 - 0.47			
Uranium-Total	0.226	0.27	A		-16.3	0.19 - 0.35	0.002		(mg/L)
Uranium-238	NR	0.268							
Vanadium	NR	3.67				2.57 - 4.77			
Zinc	NR	1.33				0.93 - 1.73			
Americium-241	NR	1.72				1.20 - 2.24			
Cesium-134	NR	127				88.90 - 165.10			
Cesium-137	NR	332				232.40 - 431.60			
Cobalt-57	NR	227				158.90 - 295.10			
Cobalt-60	NR	251				175.70 - 326.30			
Hydrogen-3	NR	280				196.00 - 364.00			
Iron-55	NR	75.9				53.13 - 98.67			
Manganese-54	NR	331				231.70 - 430.30			
Plutonium-239/240	NR	2.4				1.68 - 3.12			
Technetium-99	NR	42.9				30.03 - 55.77			
Uranium-234/233	NR	3.24				2.27 - 4.21			
Uranium-238	NR	3.33				2.33 - 4.33			
Zinc-65	NR	496				347.20 - 644.80			

Mixed Analyte Performance Evaluation Program

Laboratory Results

YPGA01 US Army Yuma Proving Ground / Material Analysis Lab
301 C. Street
Yuma AZ 85365

Sample ID: MAPEP-05-MaW13

Flags for Ni-63 / Pu-238 Sensitivity Evaluations:

N = reported statistically positive result that is significantly different from RESL reference value of 9.0 +/- 1.1 Bq/L for Ni-63 and 0.018 +/- 0.004 Bq/L for Pu-238.

W = reported statistical zero, but the reported uncertainty indicates a sensitivity level that should have detected the activity.

Flags:

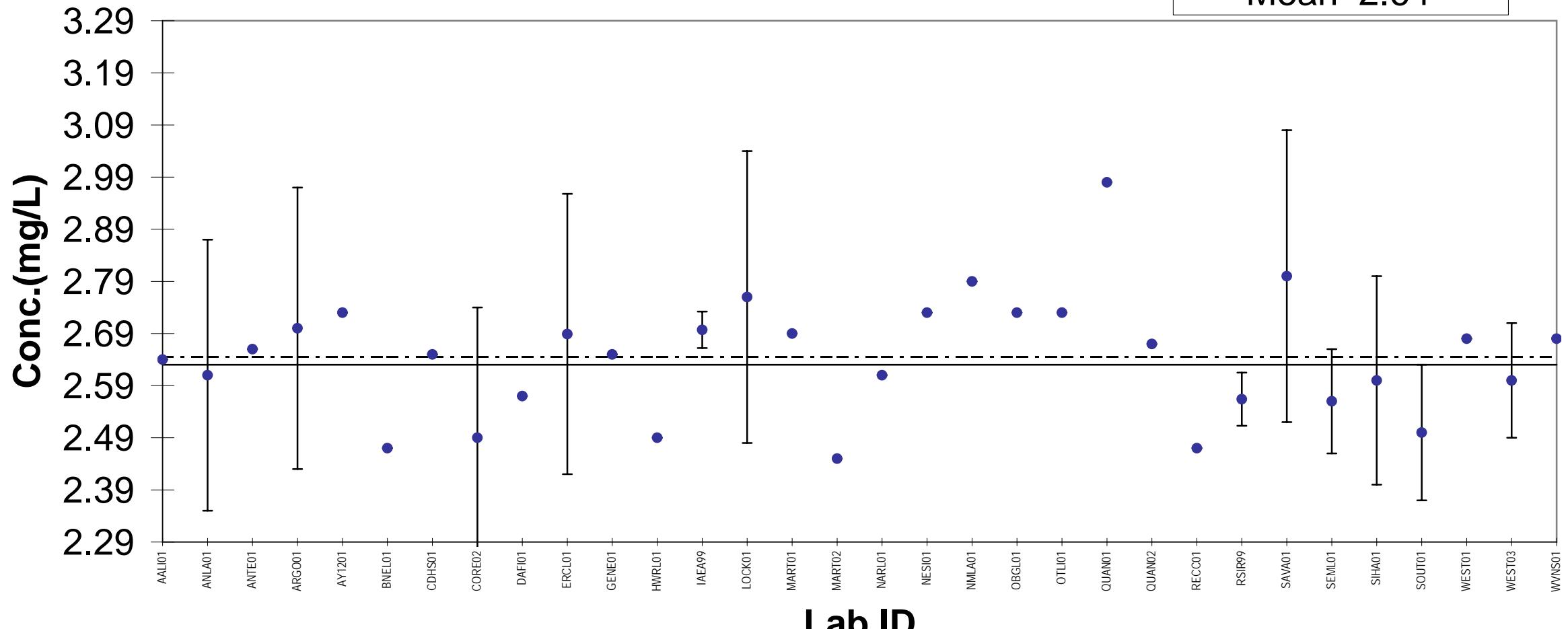
A = Result acceptable	Bias <= 20%
W = Result acceptable with warning	20% < Bias <= 30%
N = Result not acceptable	Bias > 30%
L = Uncertainty potentially too low	
H = Uncertainty potentially too high	
Q = Participant should evaluate reported value	
QL = Quantitation Limit	
RW = Report Warning	
NR = Not Reported	

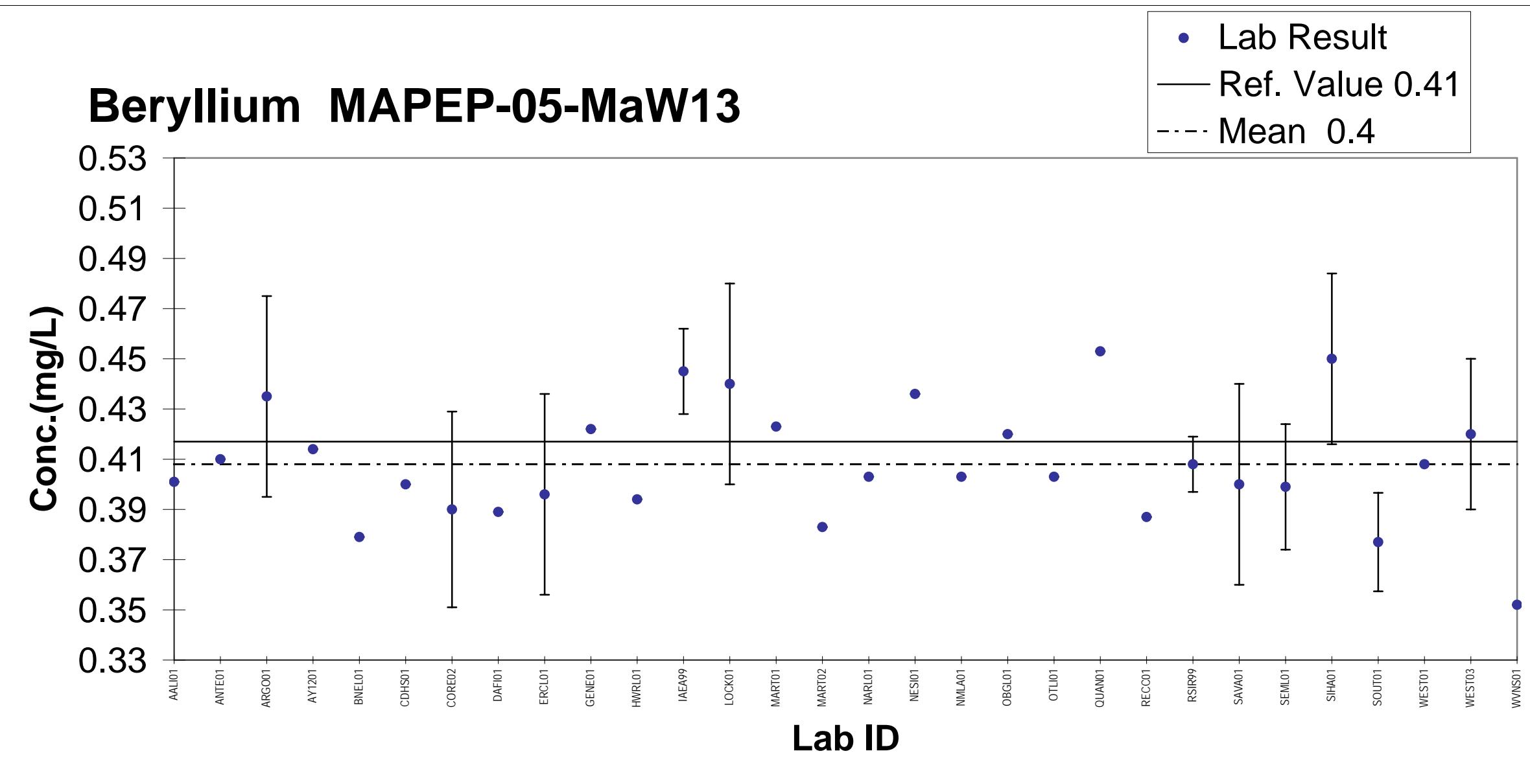
Flag Text

- 1 - False Positive
- 2 - False Negative
- 4 - Sensitivity Evaluation
- 5 - Total Metal
- 6 - Not Evaluated
- 7 - DL > CLP Limit
- 9 - Check QL
- 10 - Check Isomer
- 11 - False Positive Test, Value Not Reported
- 14 - Solubility issue
- 15 - Refractory
- 16 - Reported zero uncertainty
- 17 - NOT DETECTED, reported a statistical zero result
- 18 - Sensitivity evaluation, Value not Reported

Barium MAPEP-05-MaW13

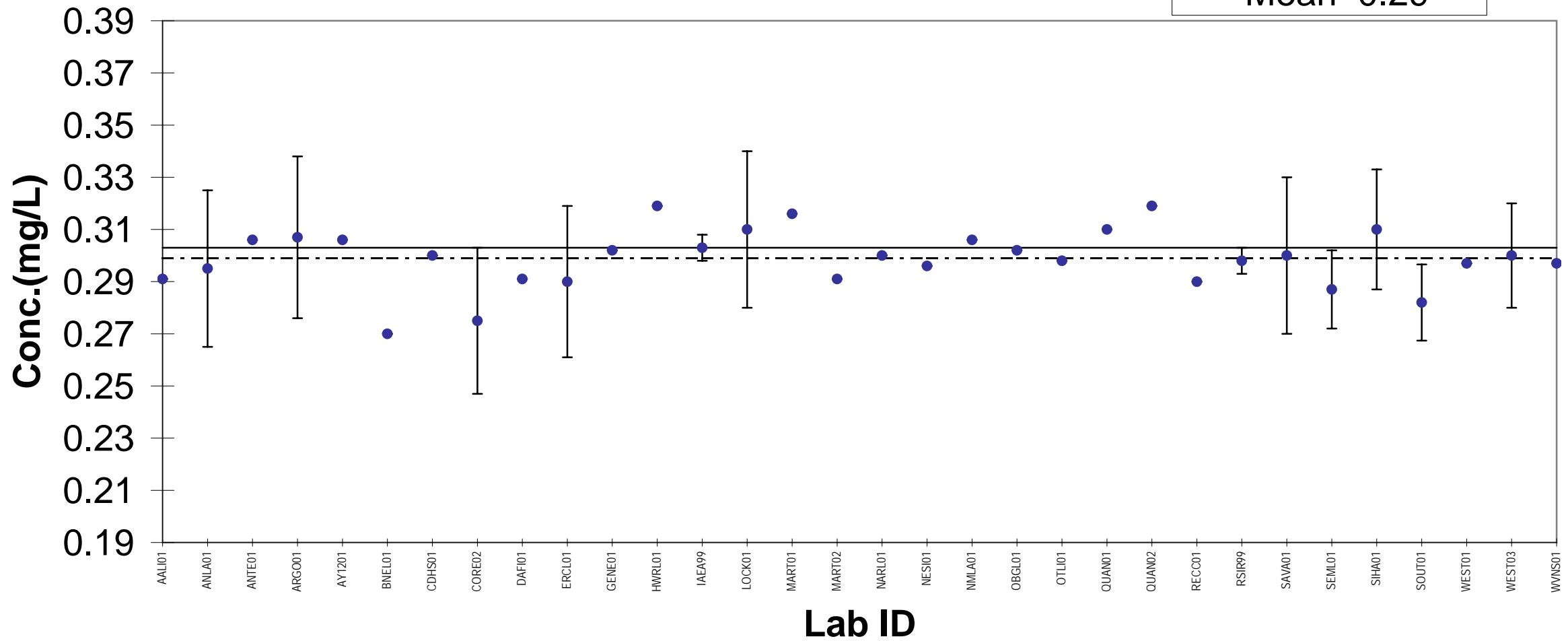
• Lab Result
— Ref. Value 2.63
- - - Mean 2.64





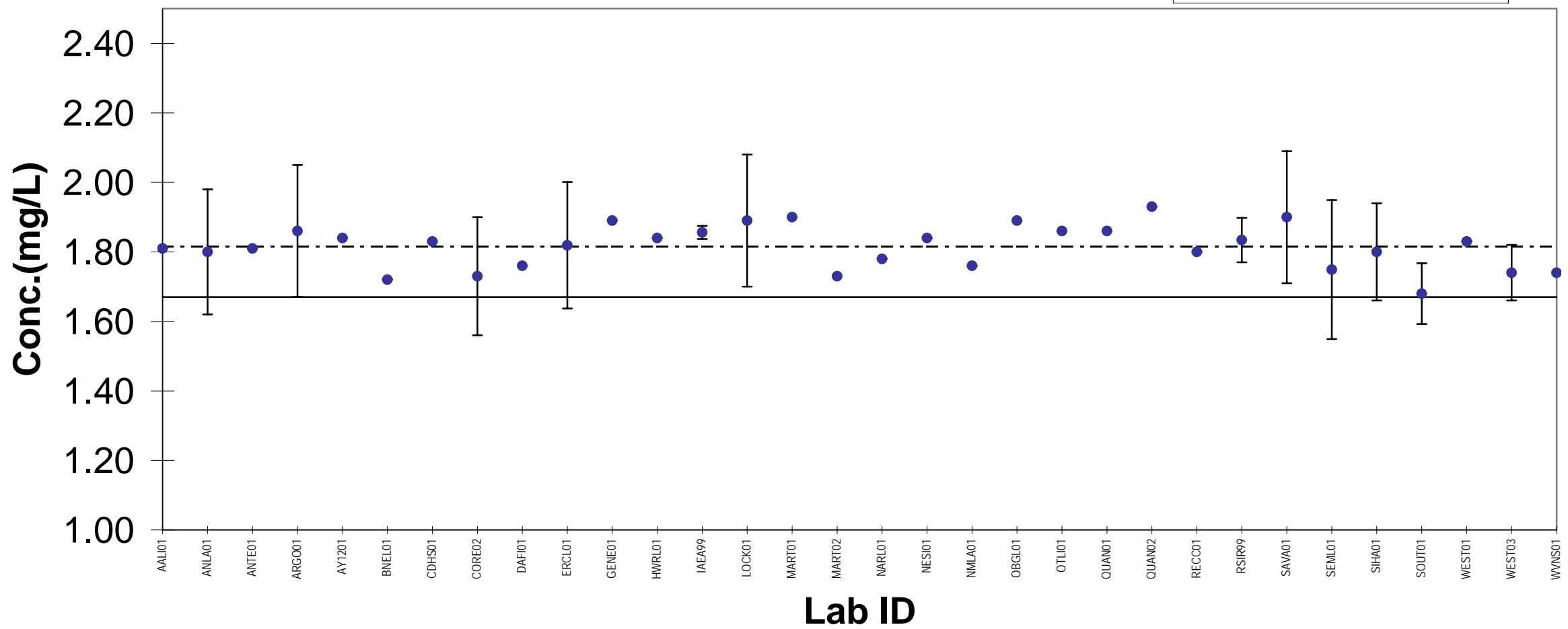
Cadmium MAPEP-05-MaW13

• Lab Result
— Ref. Value 0.3
- - - Mean 0.29



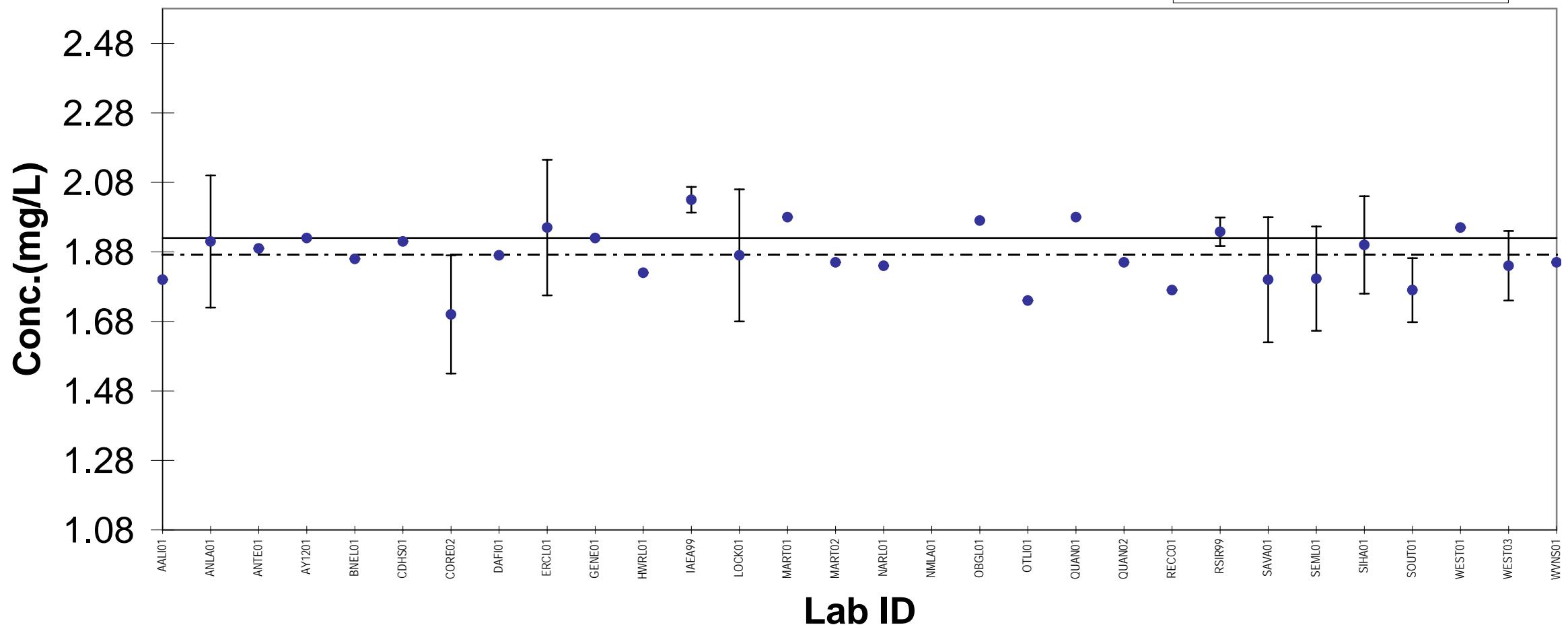
Chromium MAPEP-05-MaW13

• Lab Result
— Ref. Value 1.67
- - - Mean 1.81



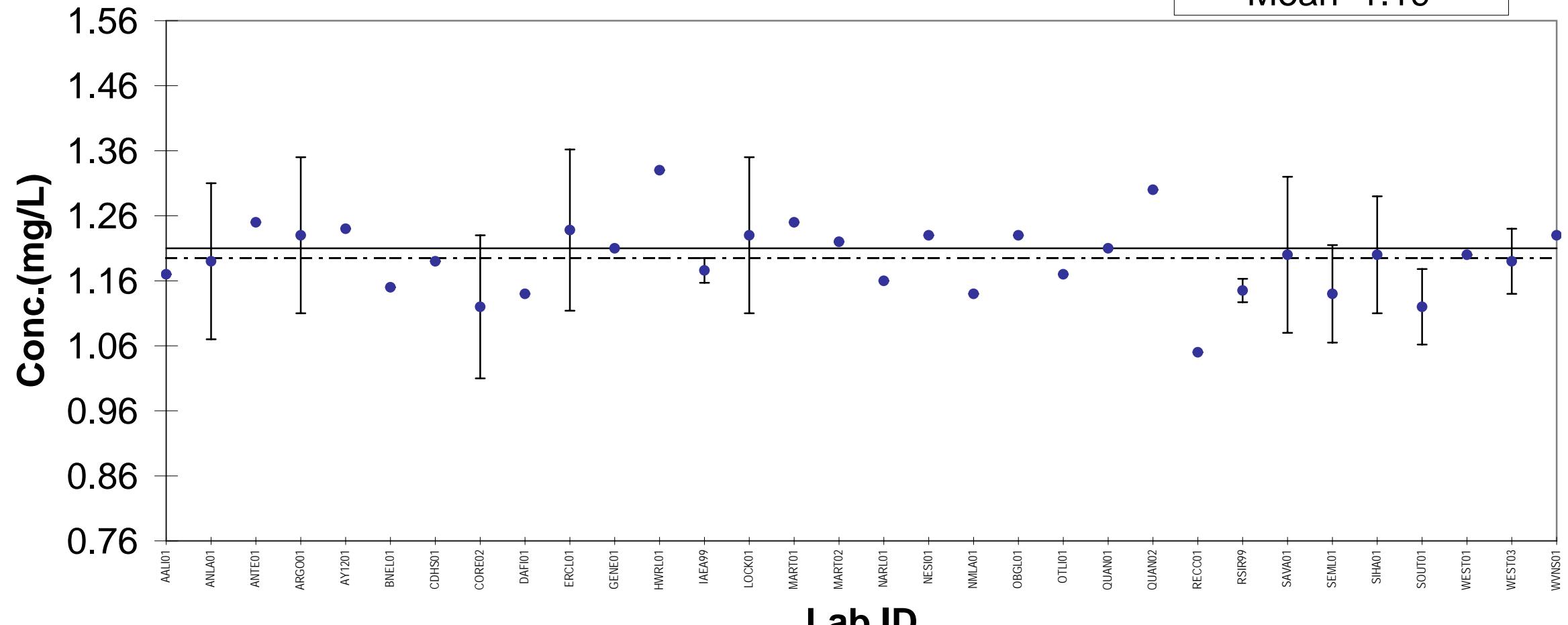
Copper MAPEP-05-MaW13

• Lab Result
— Ref. Value 1.92
- - - Mean 1.87



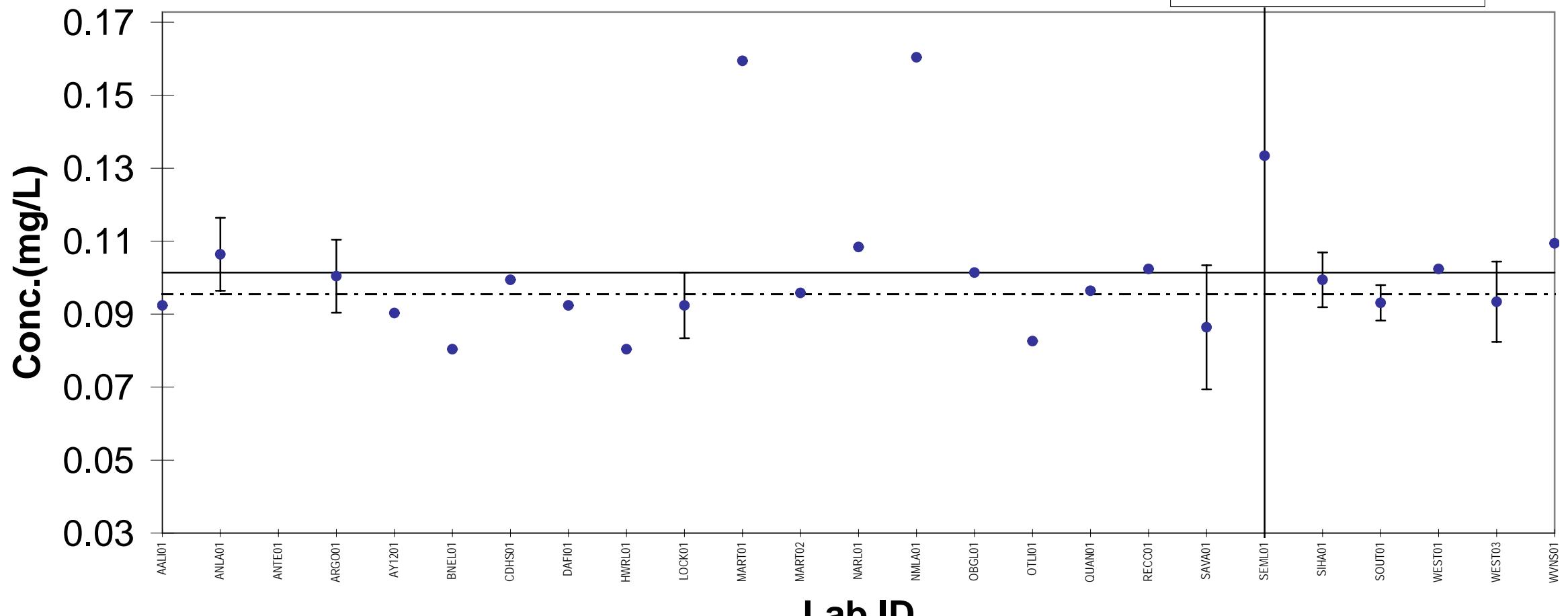
Lead MAPEP-05-MaW13

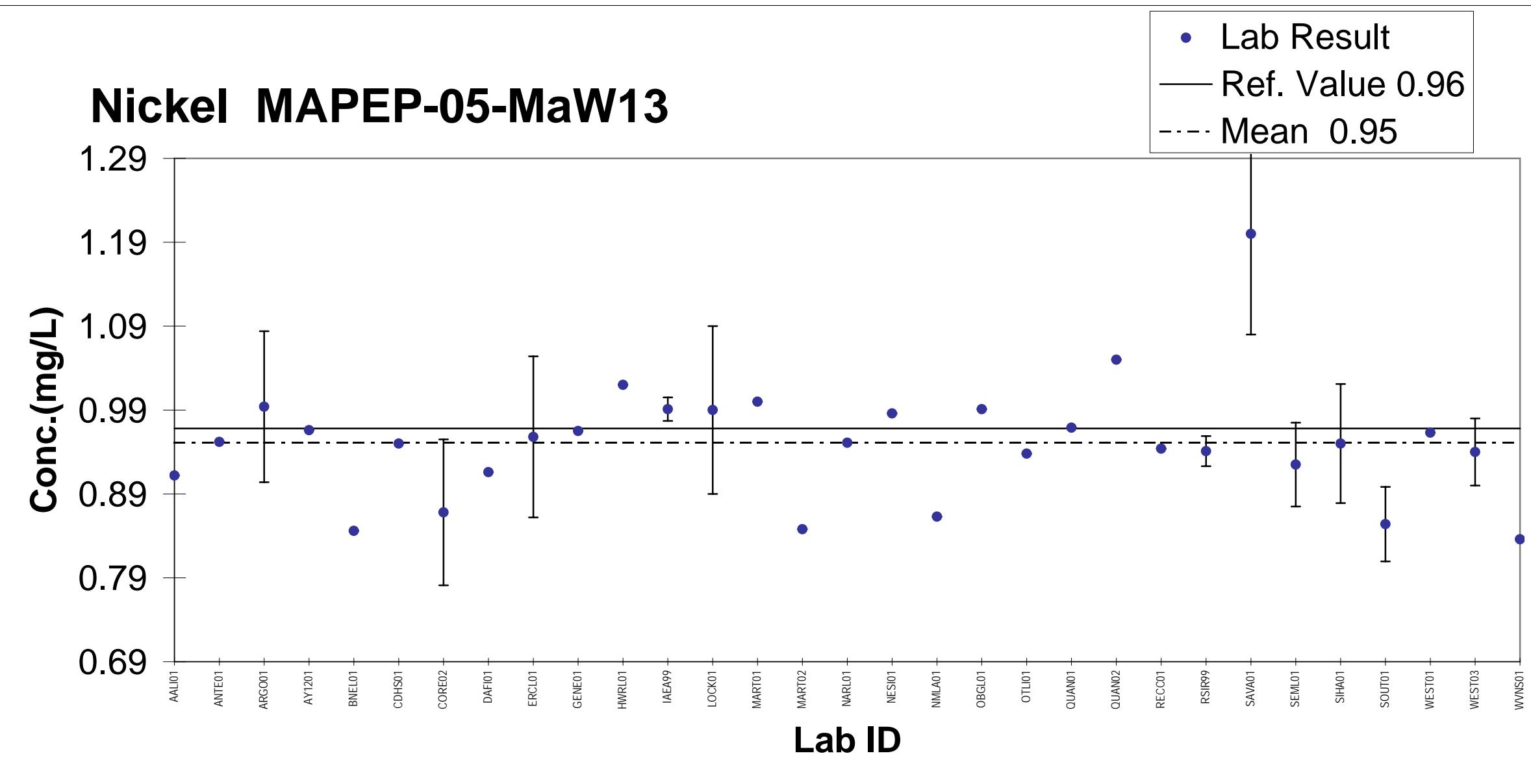
• Lab Result
— Ref. Value 1.21
- - - Mean 1.19



Mercury MAPEP-05-MaW13

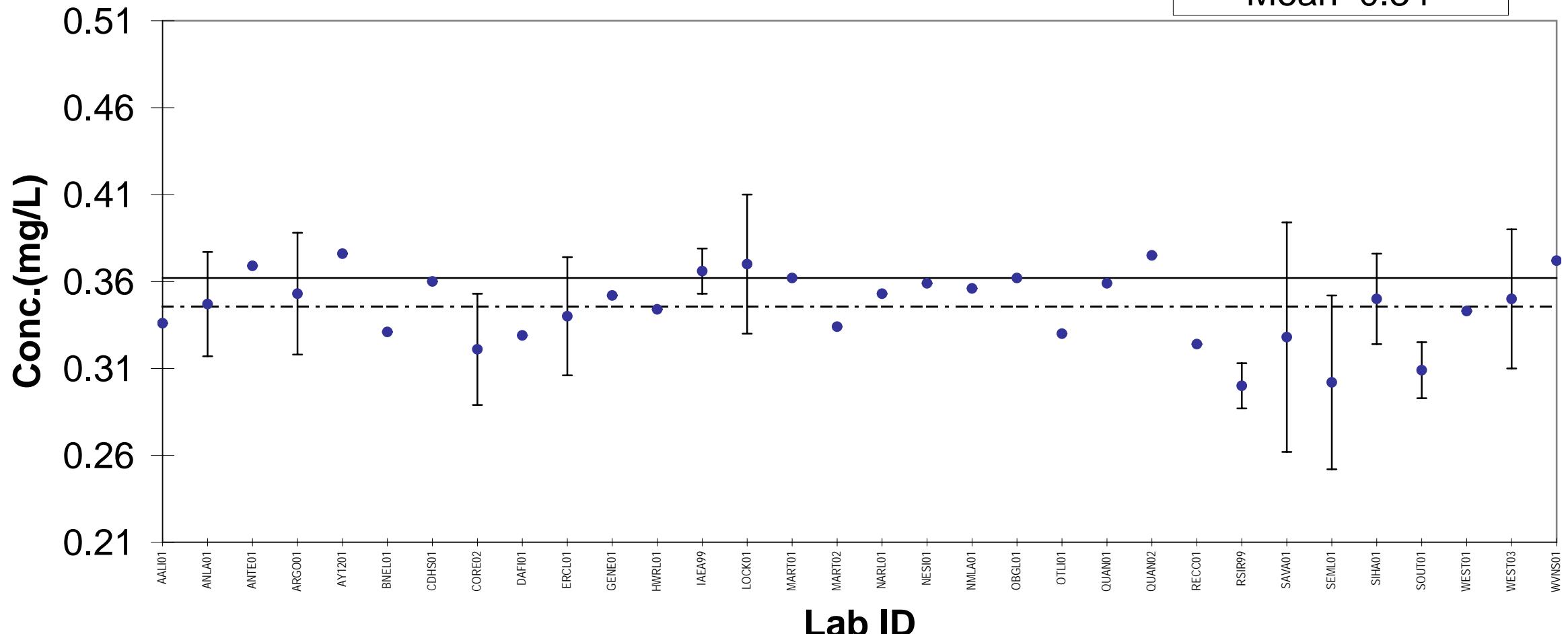
• Lab Result
— Ref. Value 0.1
- - - Mean 0.09





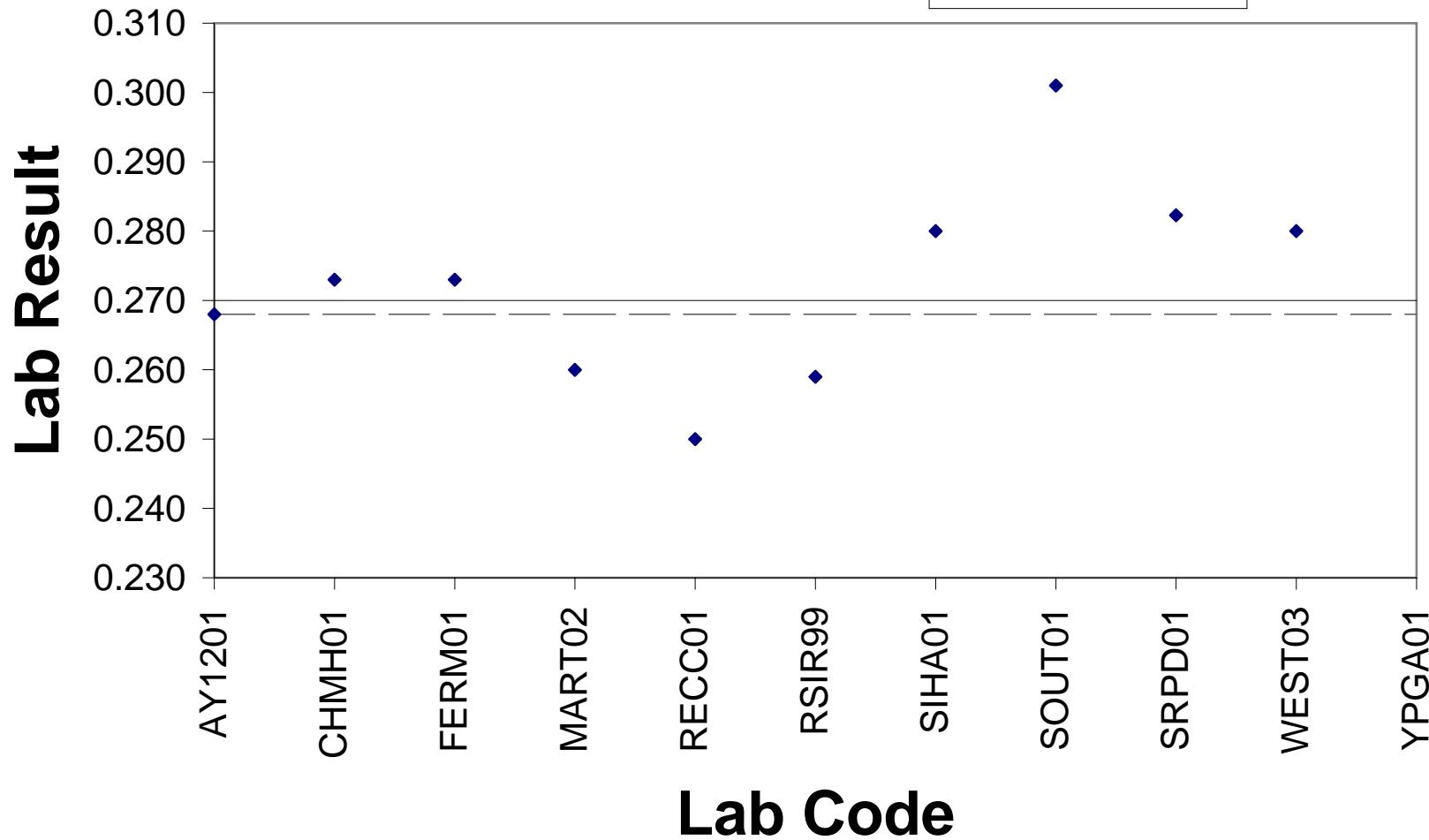
Selenium MAPEP-05-MaW13

• Lab Result
— Ref. Value 0.36
- - Mean 0.34



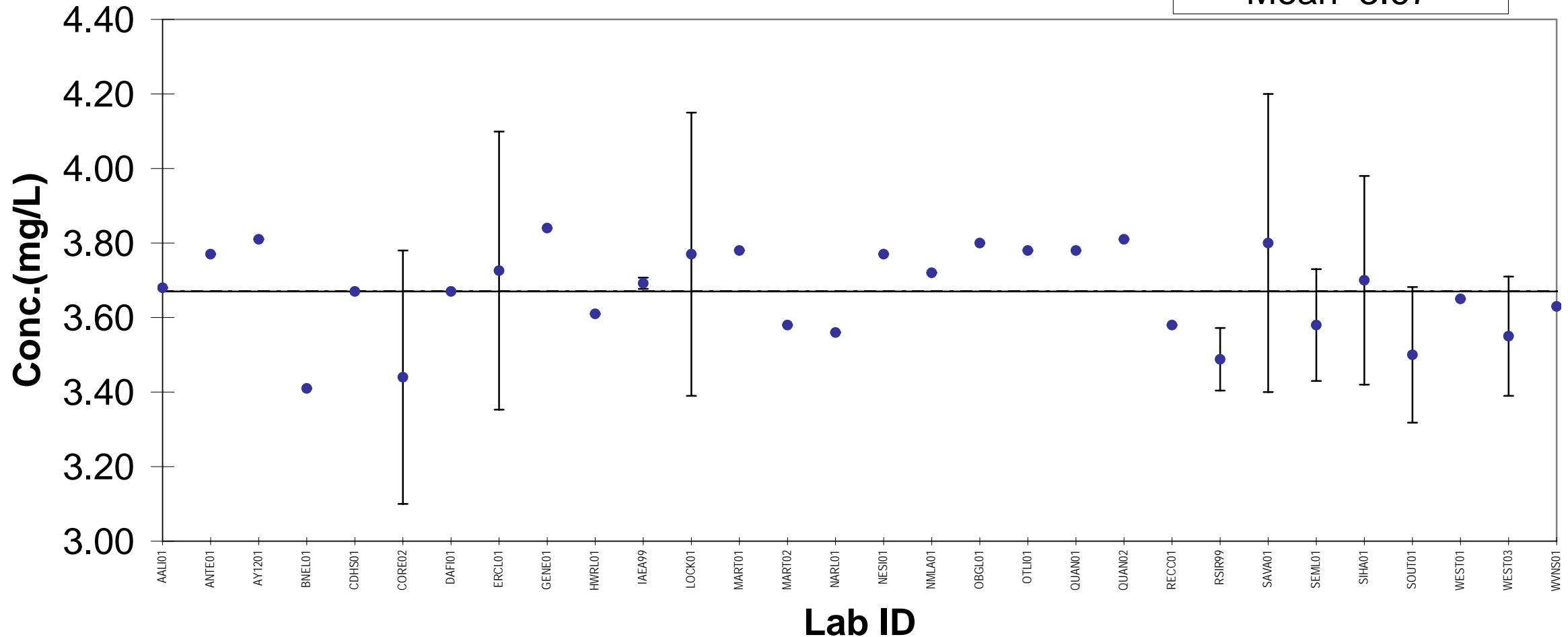
U-Total MAPEP-05-MaW13

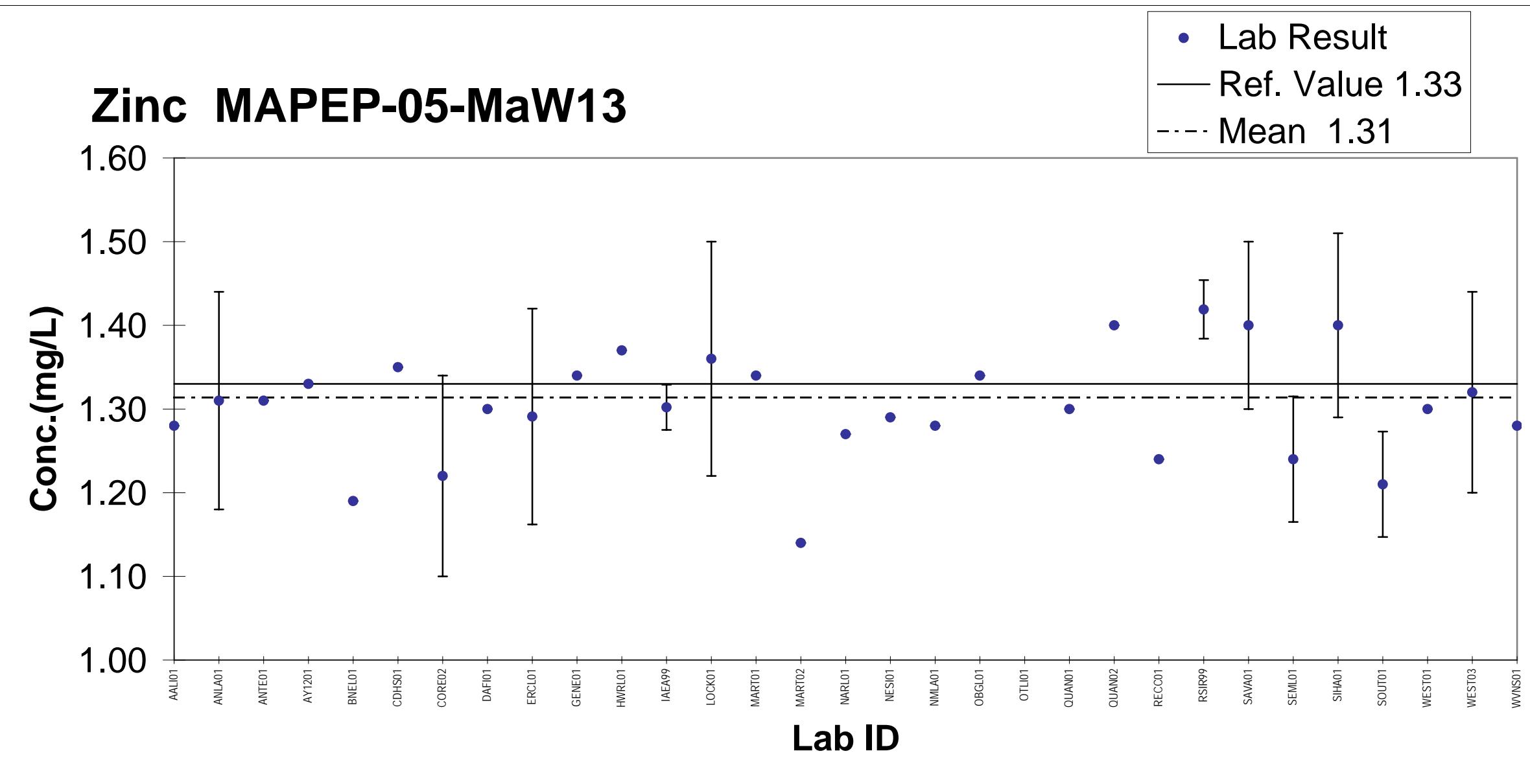
◆ Lab Result
— Ref Value = 0.270
- - Mean = 0.268



Vanadium MAPEP-05-MaW13

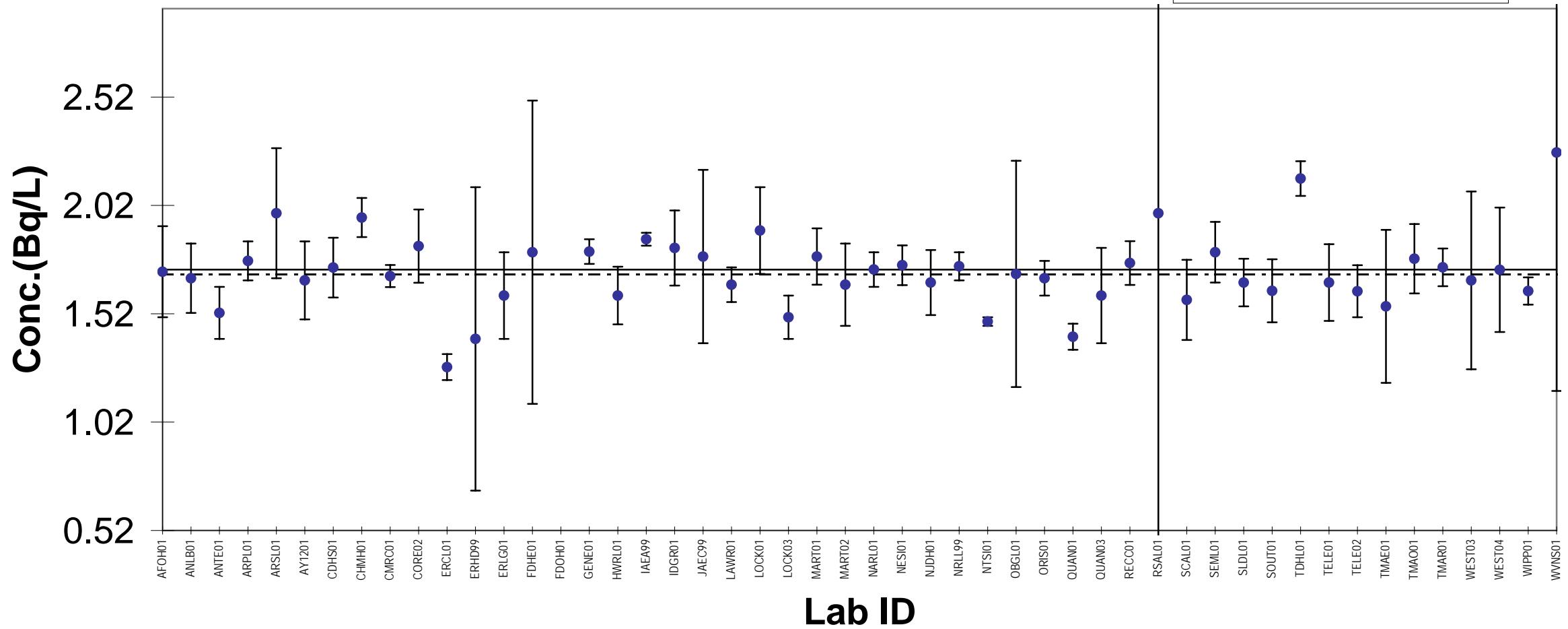
• Lab Result
— Ref. Value 3.67
- - - Mean 3.67





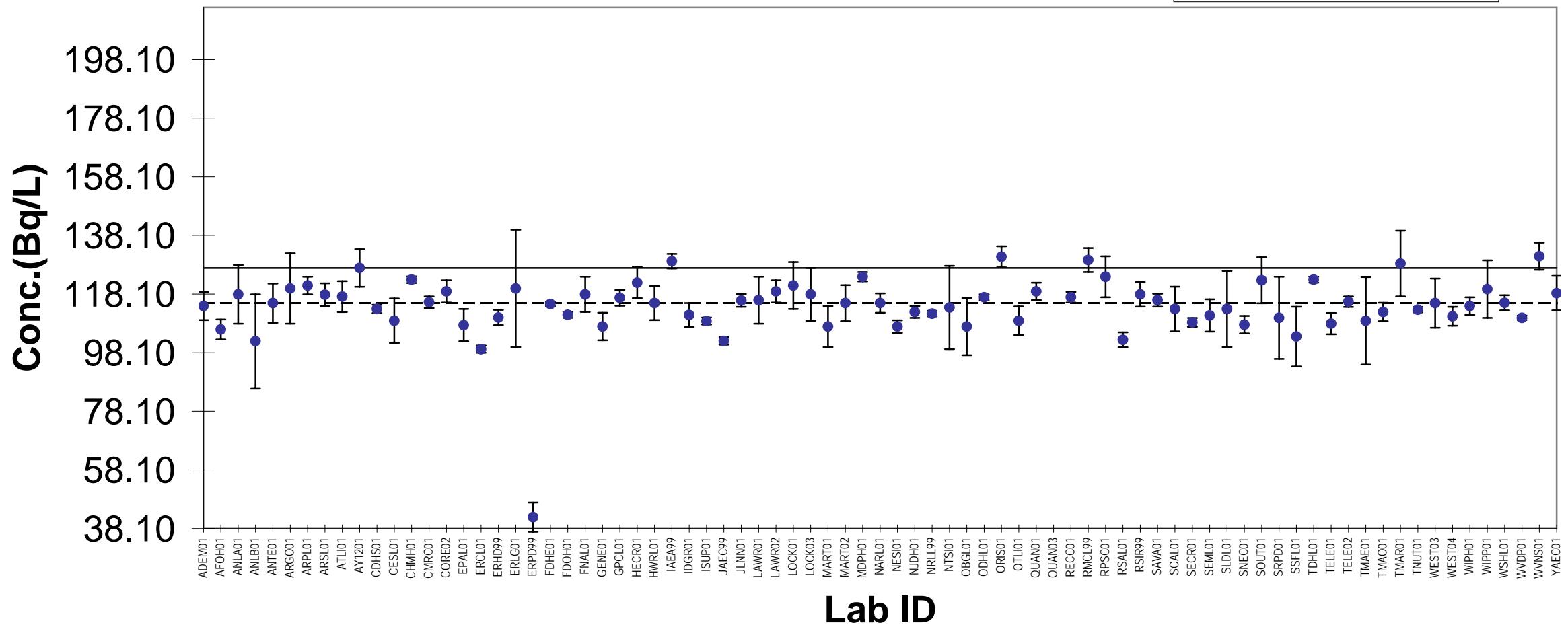
Americium-241 MAPEP-05-MaW13

• Lab Result
— Ref. Value 1.72
- - - Mean 1.69



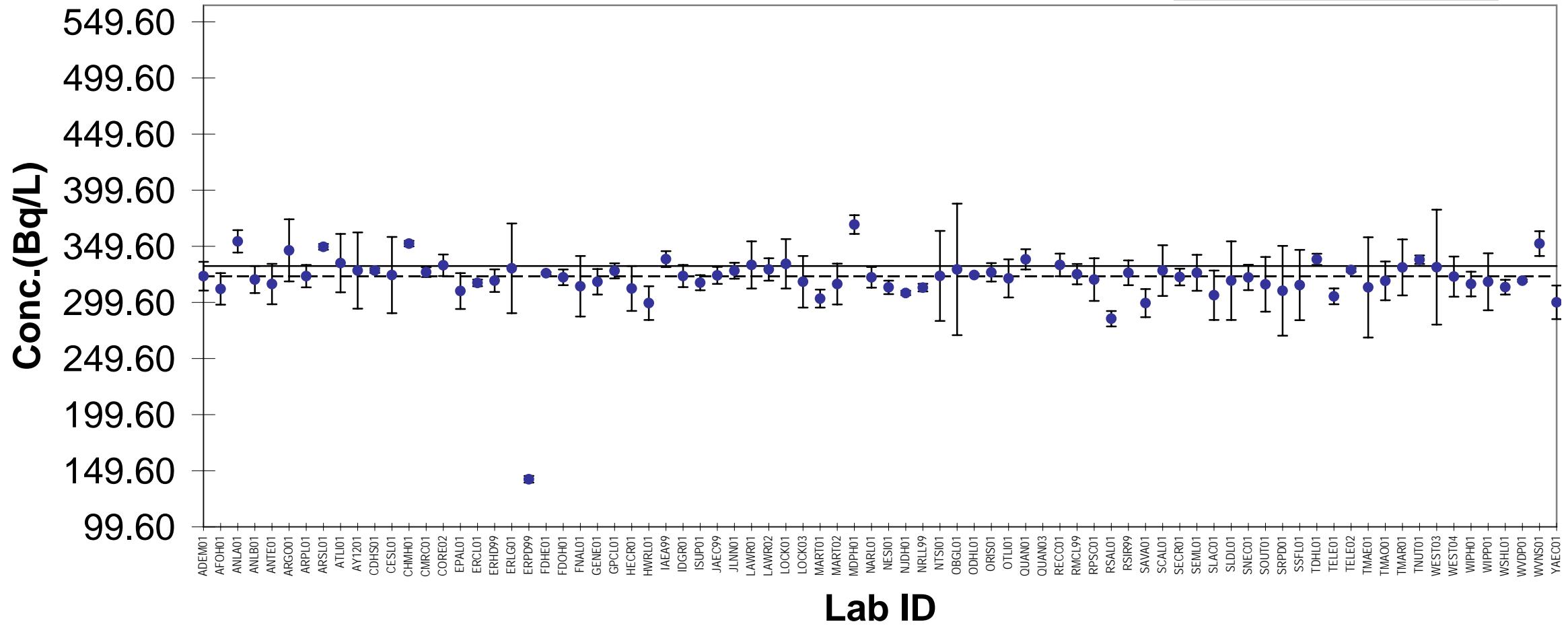
Cesium-134 MAPEP-05-MaW13

• Lab Result
— Ref. Value 127
- - - Mean 114.89



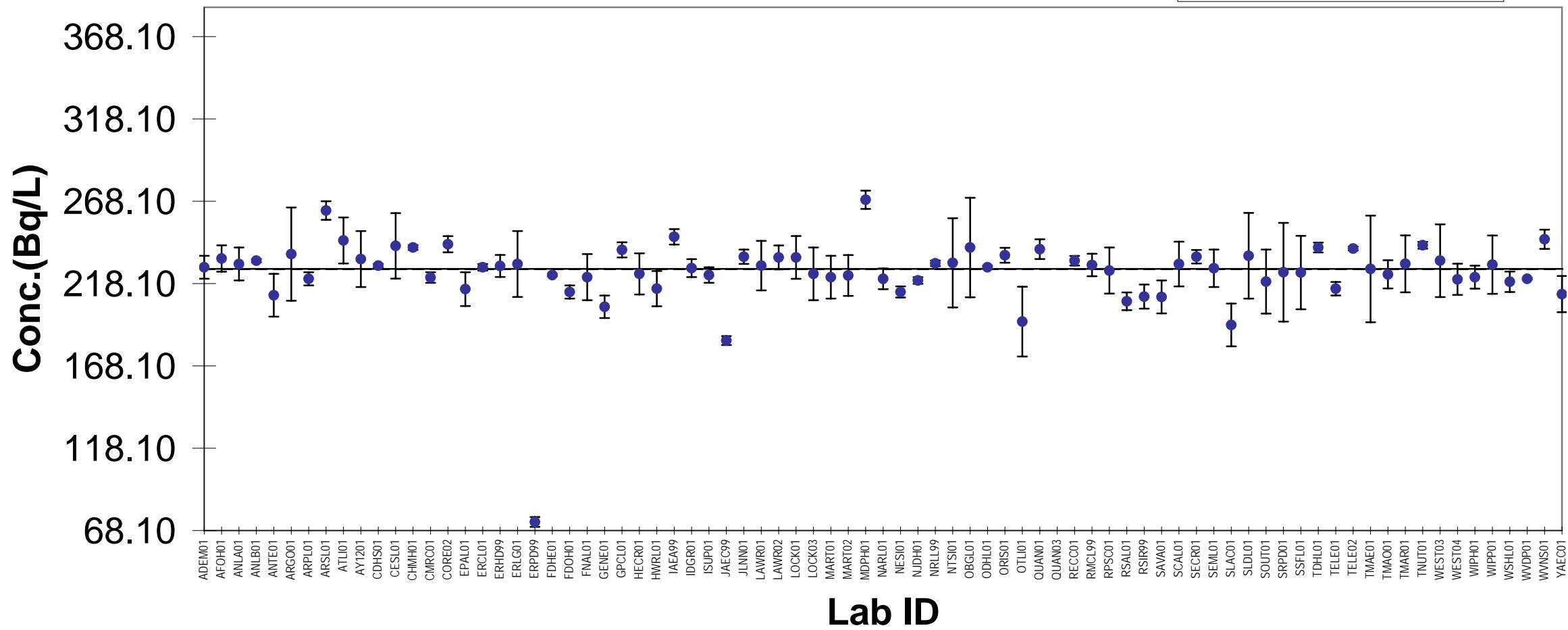
Cesium-137 MAPEP-05-MaW13

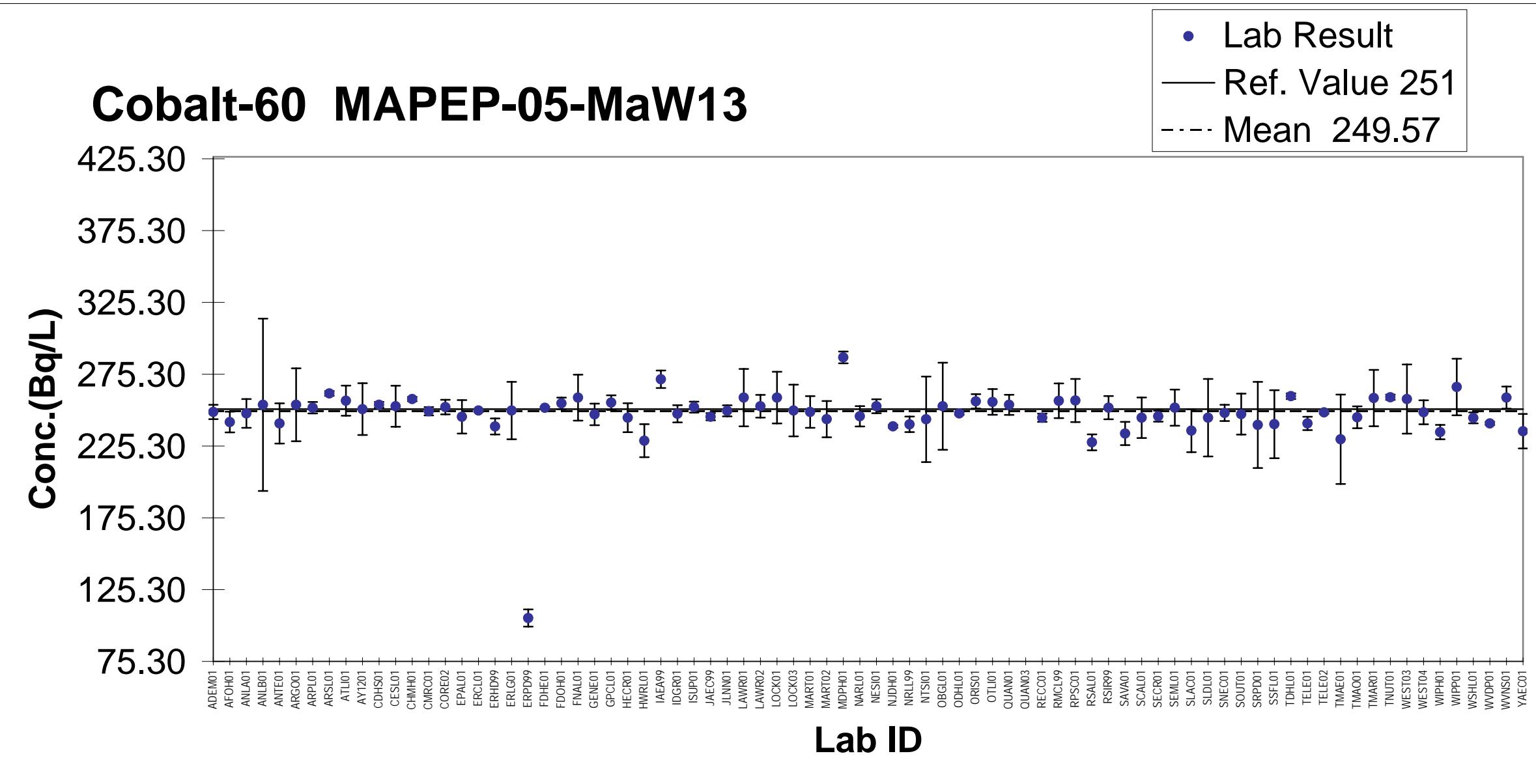
• Lab Result
— Ref. Value 332
- - - Mean 323.16



Cobalt-57 MAPEP-05-MaW13

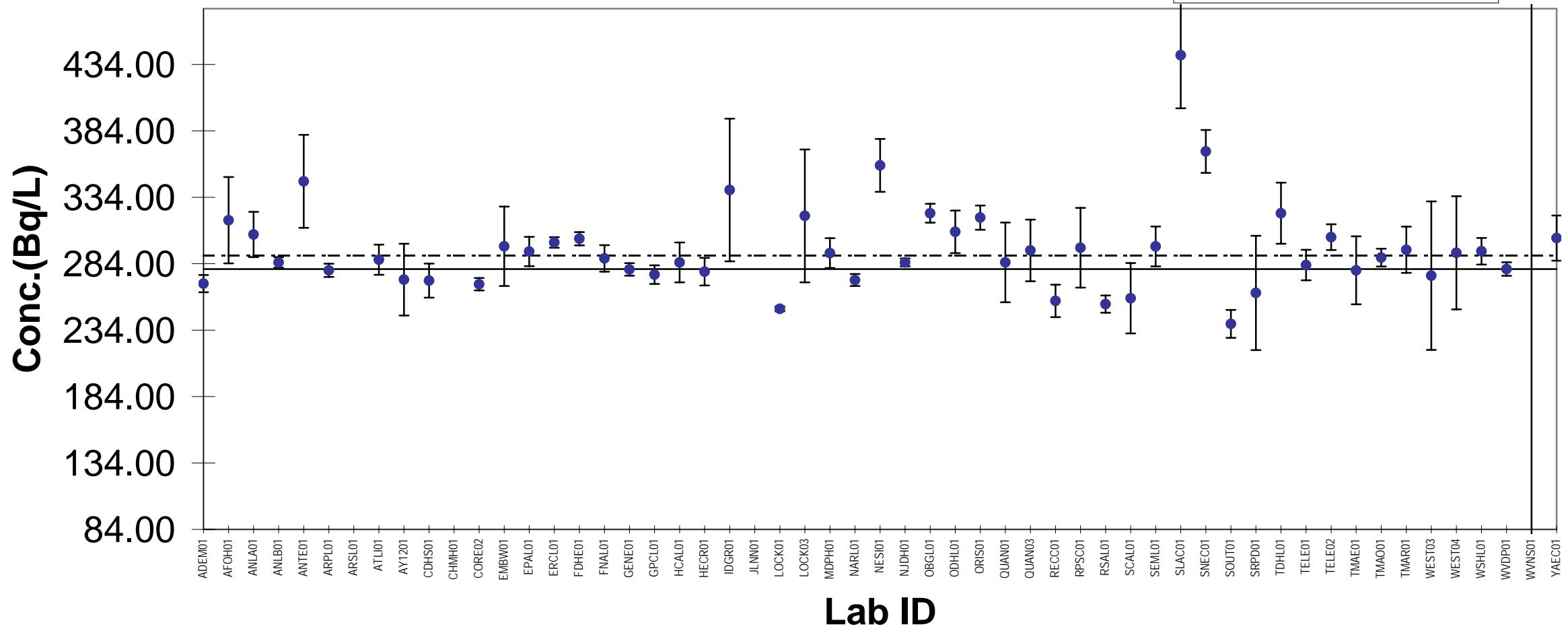
• Lab Result
— Ref. Value 227
- - - Mean 226.89





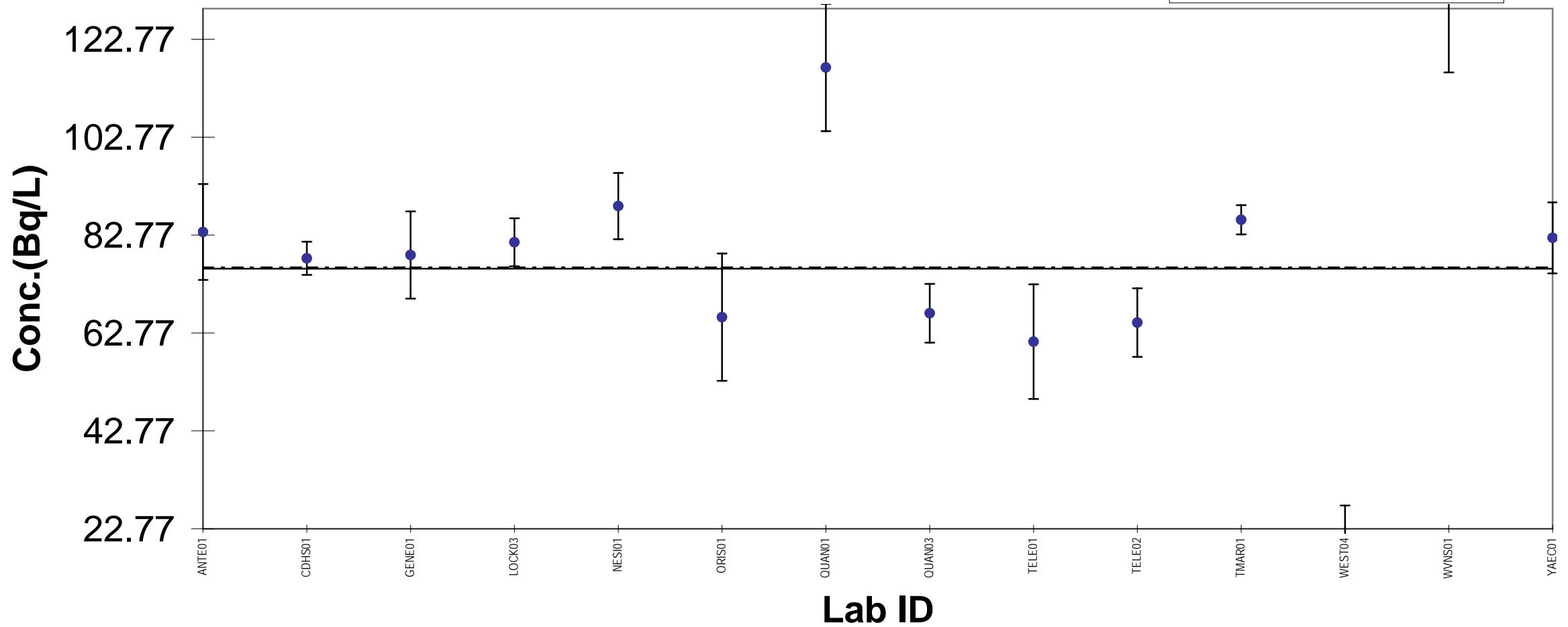
Hydrogen-3 MAPEP-05-MaW13

• Lab Result
— Ref. Value 280
- - - Mean 290.21



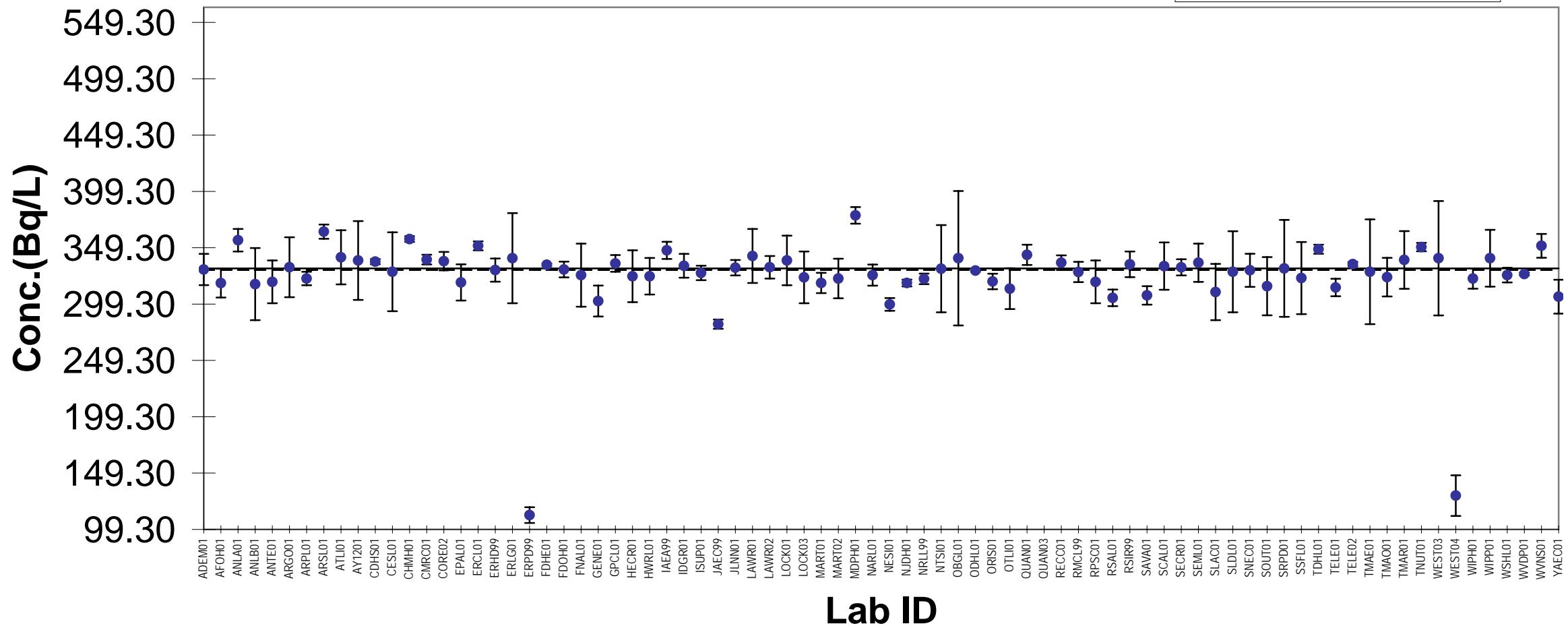
Iron-55 MAPEP-05-MaW13

• Lab Result
— Ref. Value 75.9
--- Mean 76.08



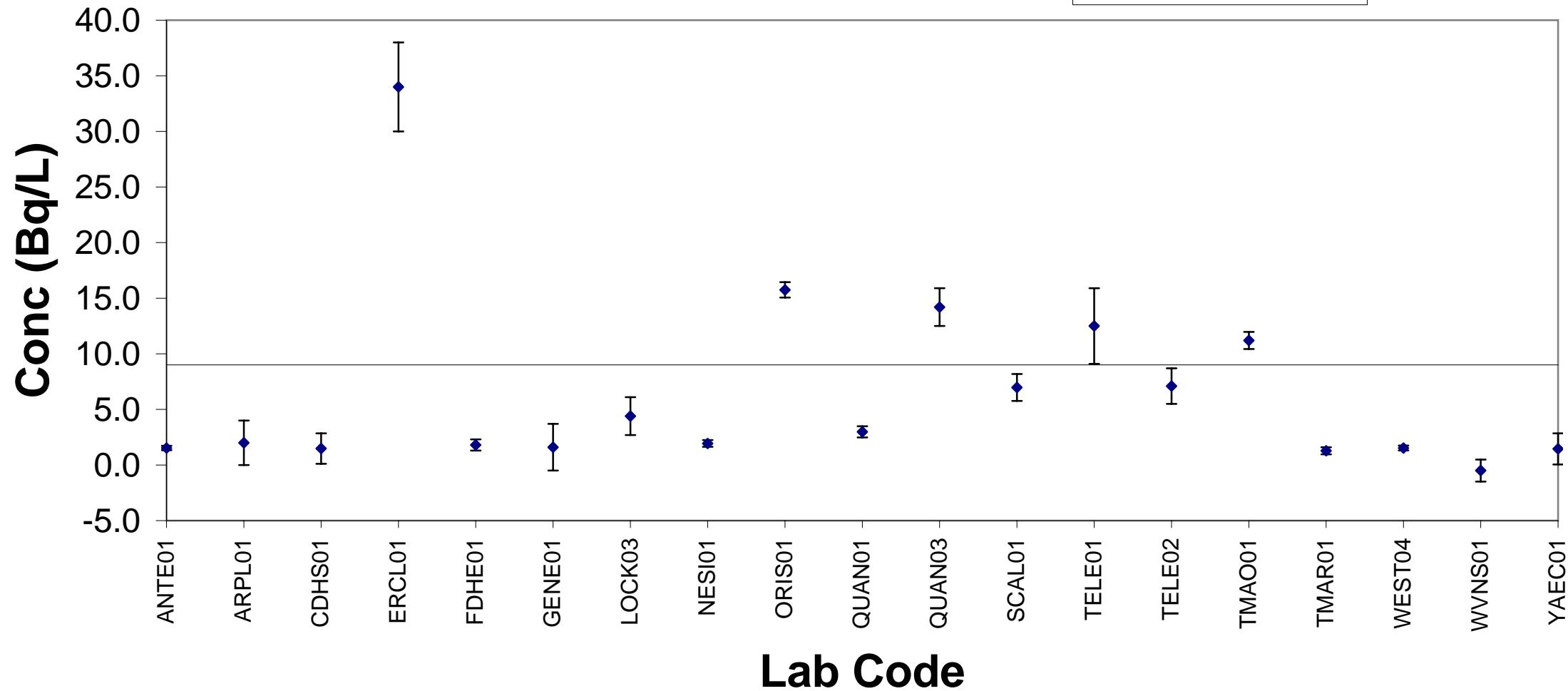
Manganese-54 MAPEP-05-MaW13

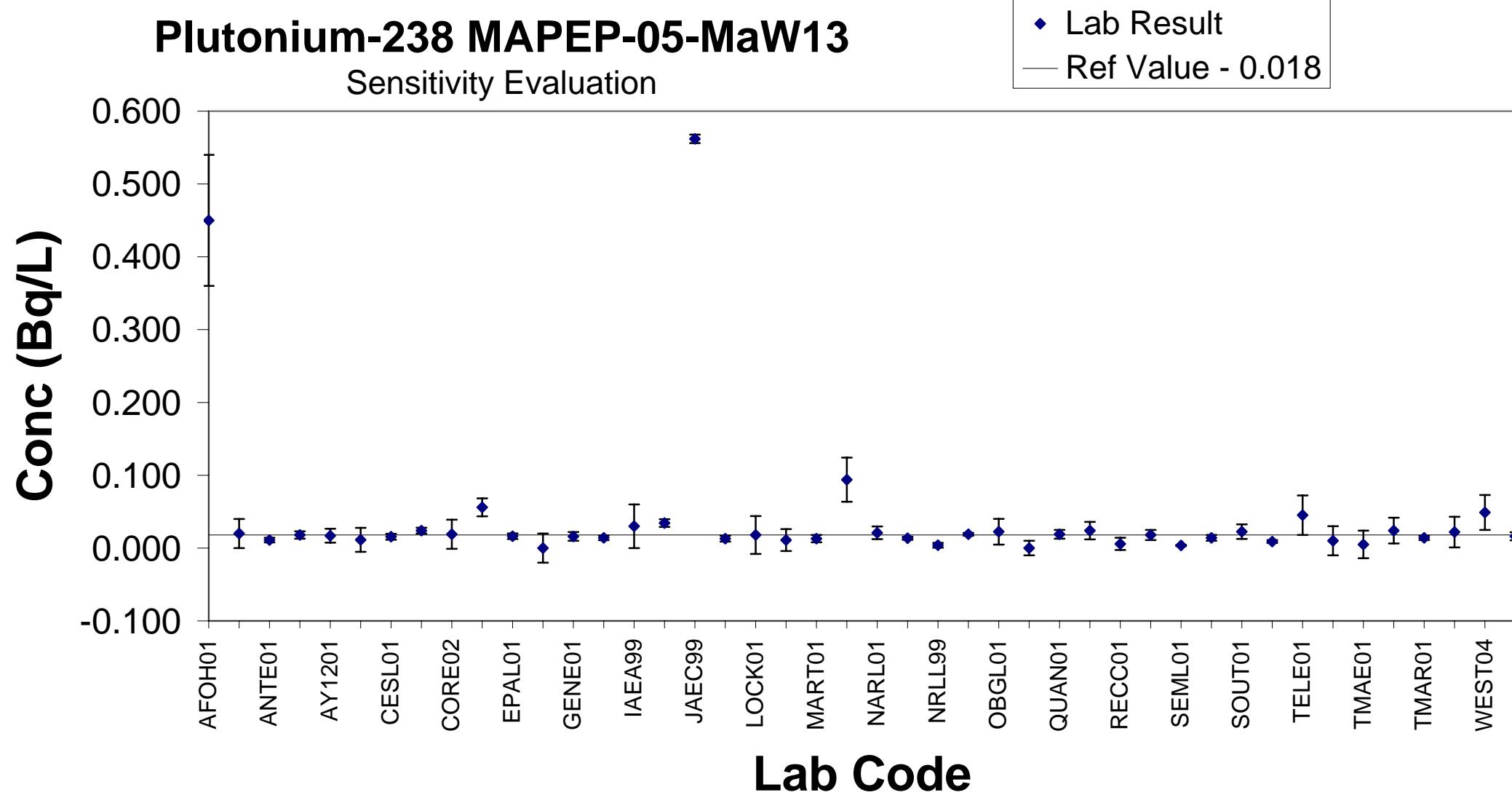
• Lab Result
— Ref. Value 331
- - - Mean 329.51



Nickel-63 MAPEP-05-MaW13

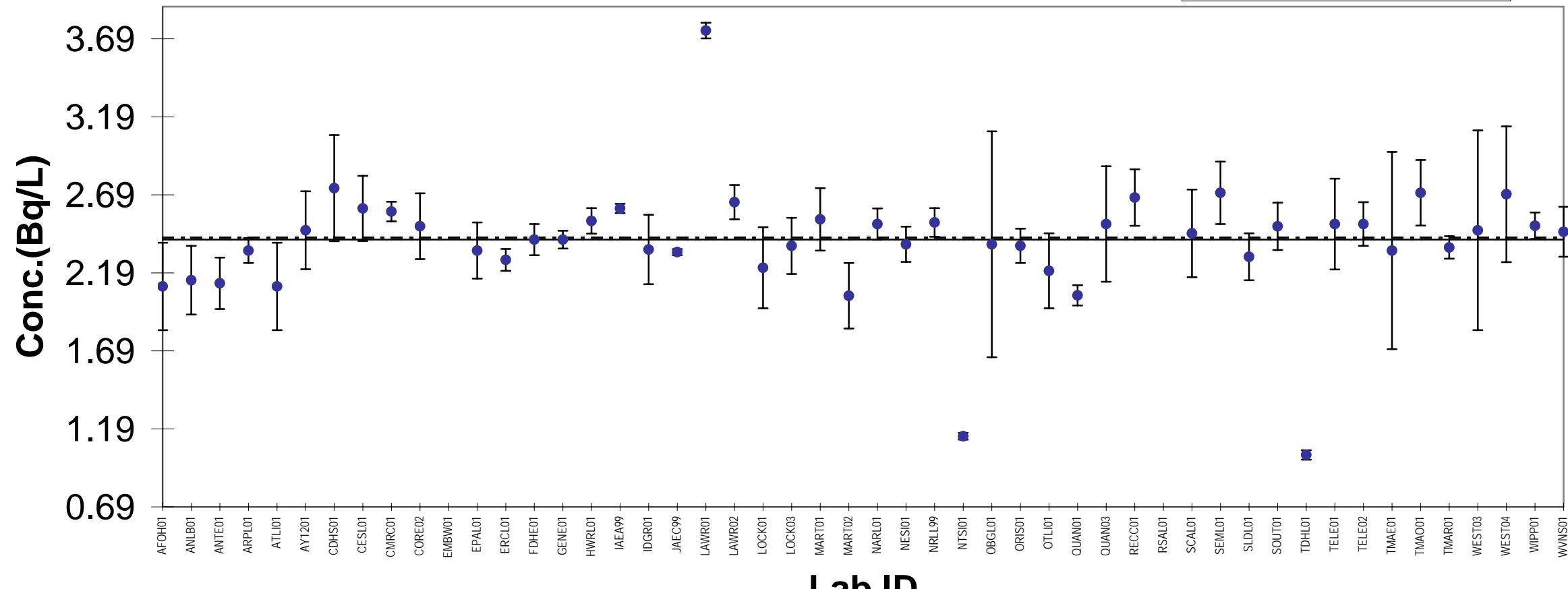
♦ Lab Result
— Ref Value = 9.0





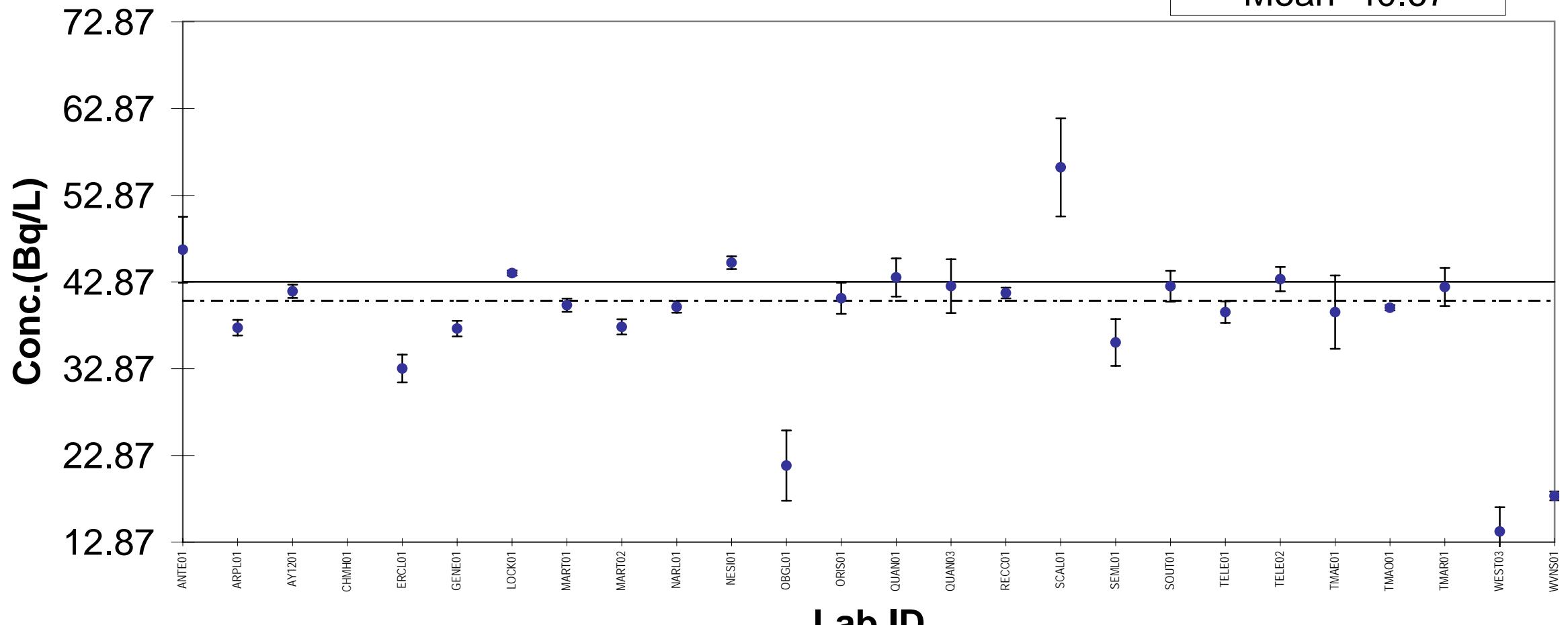
Plutonium-239/240 MAPEP-05-MaW13

• Lab Result
— Ref. Value 2.40
- - - Mean 2.41



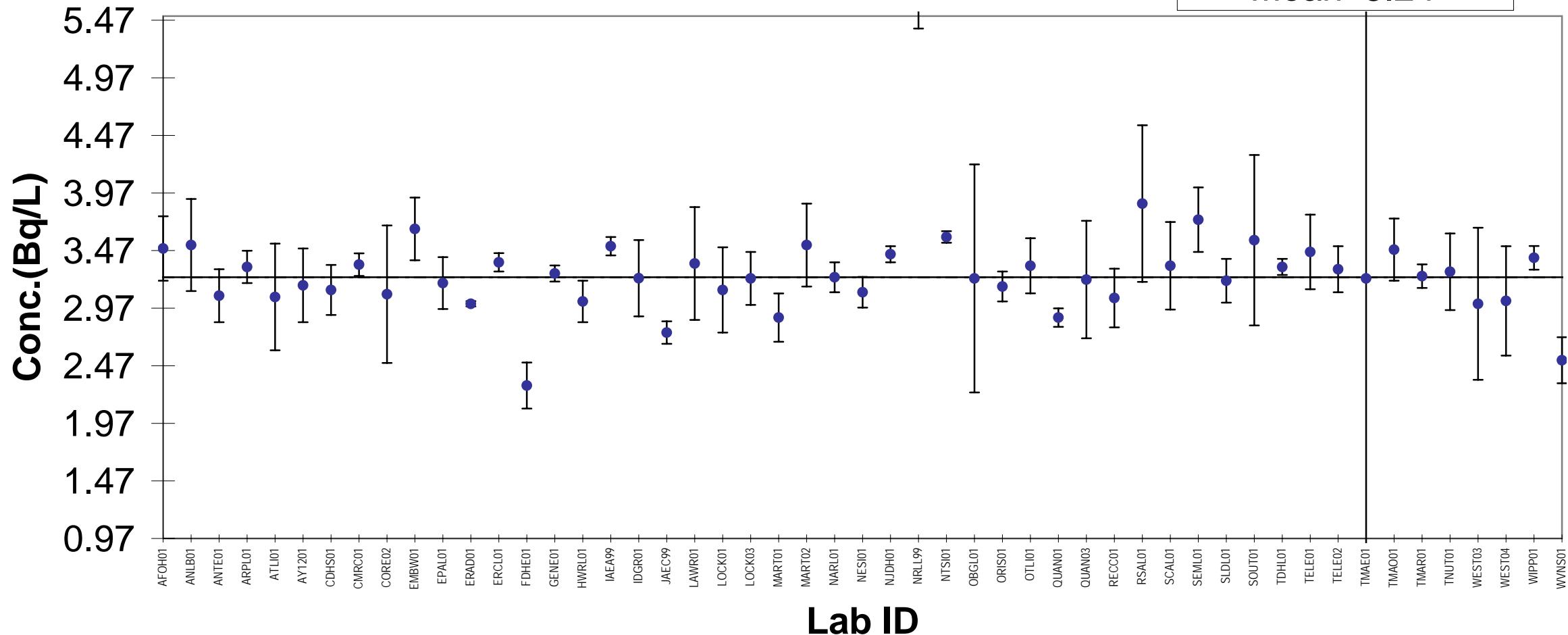
Technetium-99 MAPEP-05-MaW13

• Lab Result
— Ref. Value 42.9
- - - Mean 40.67



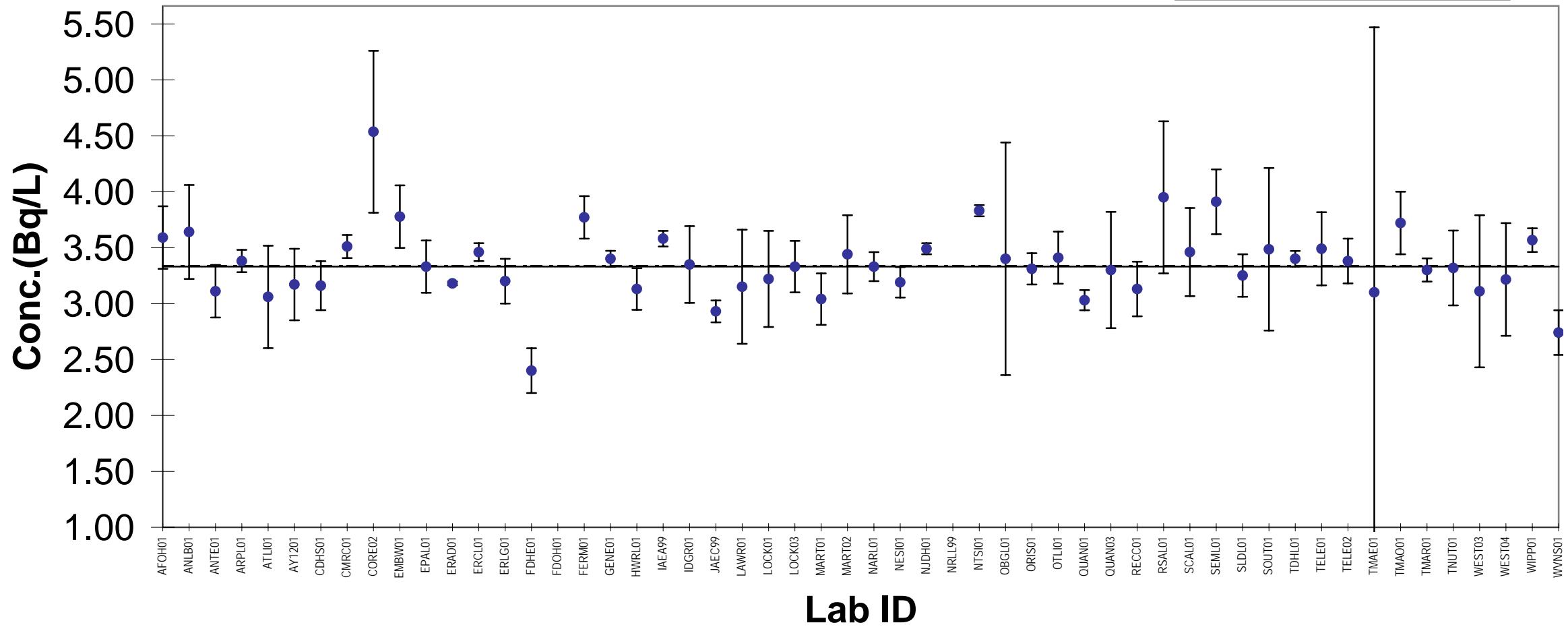
Uranium-234/233 MAPEP-05-MaW13

• Lab Result
— Ref. Value 3.24
- - - Mean 3.24



Uranium-238 MAPEP-05-MaW13

• Lab Result
— Ref. Value 3.33
- - - Mean 3.33



Zinc-65 MAPEP-05-MaW13

• Lab Result
— Ref. Value 496
- - - Mean 521.66

